OHIO STATE UNIVERSITY

SOAP AND CHEMICAL SPECIALTIES

MARCH 1960

Just appointed president of American Home Products Corp.'s household products division, Boyle-Midway, Inc., world's largest chemical specialties firm, is Bernard Gould. He joined American Home in 1958 as assistant to the president.

IN THIS ISSUE

Rating household cleansers 47
Chain grocer's view of aerosols 60
Automotive cooling system additives 71
Biological insect control 83

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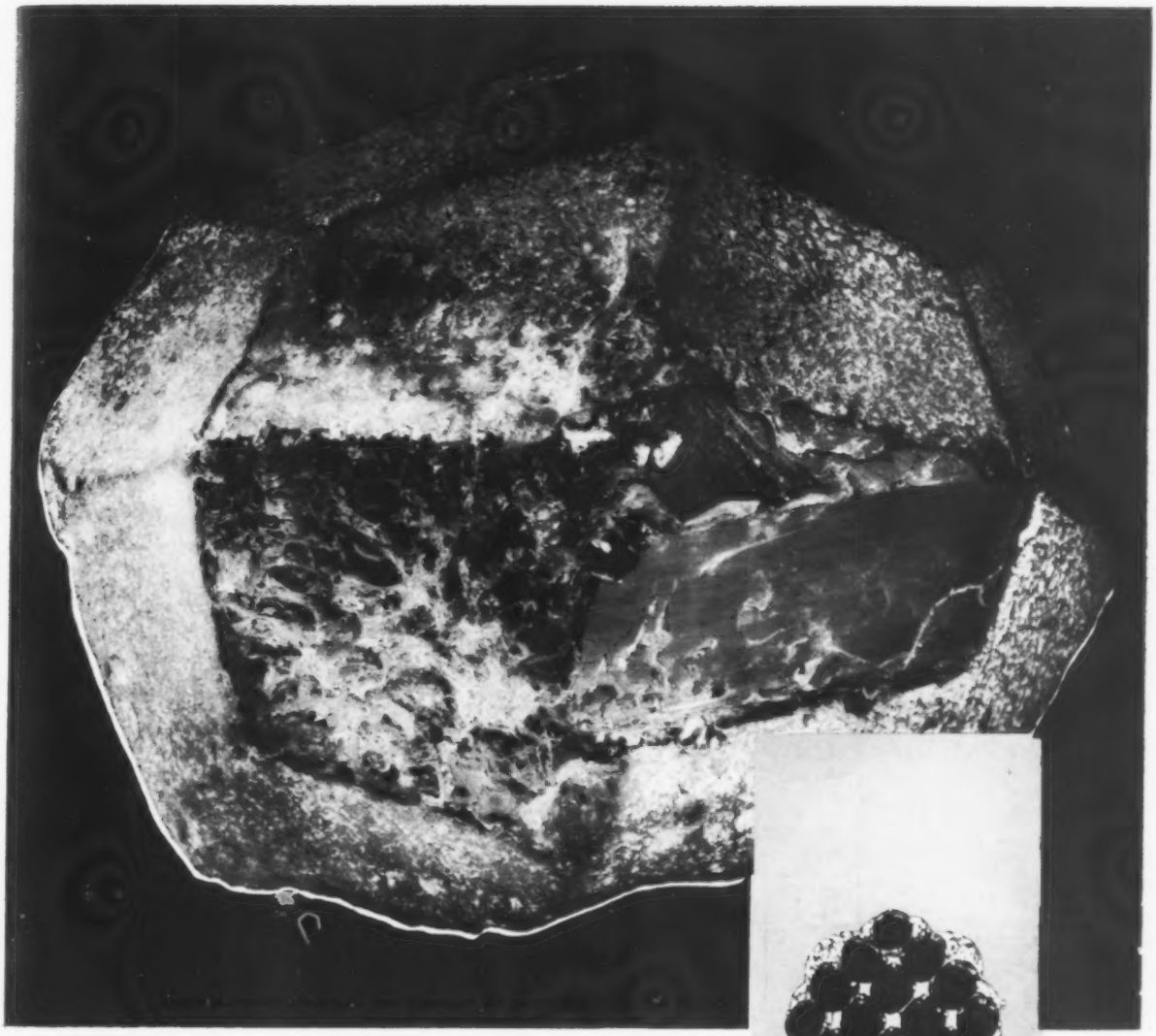

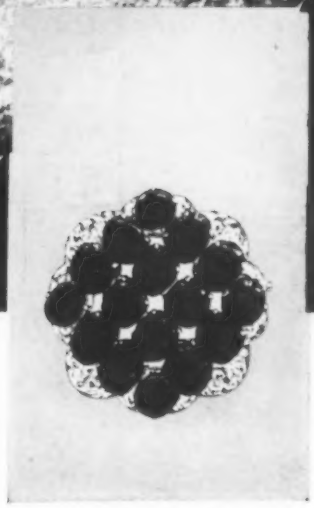

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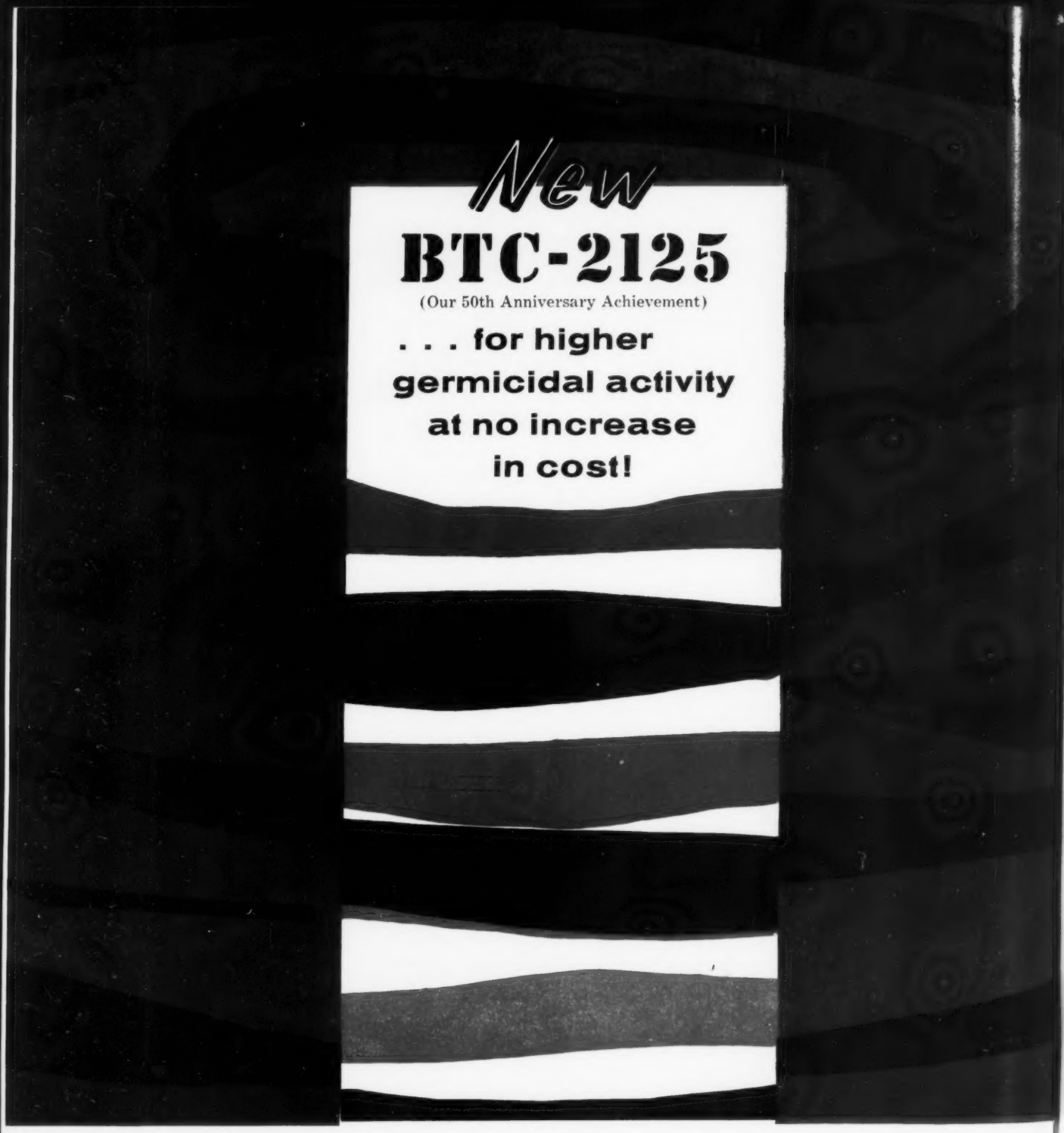

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Volume XXXVI, No. 3, Mar., 1960

Cover photo: Bernard Gould, just elected president of Boyle-Midway, Inc., New York, household chemical specialties division of American Home Products Corp. He had served as assistant to Walter Silbersack, president of parent corporation, since 1958. Mr. Gould succeeds Strieder Schraffenberger as president of the world's largest household chemical specialties manufacturing organization.

MEMBER
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Published monthly by
MAC NAIR-DORLAND COMPANY, Inc.

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Vice-President and Treasurer

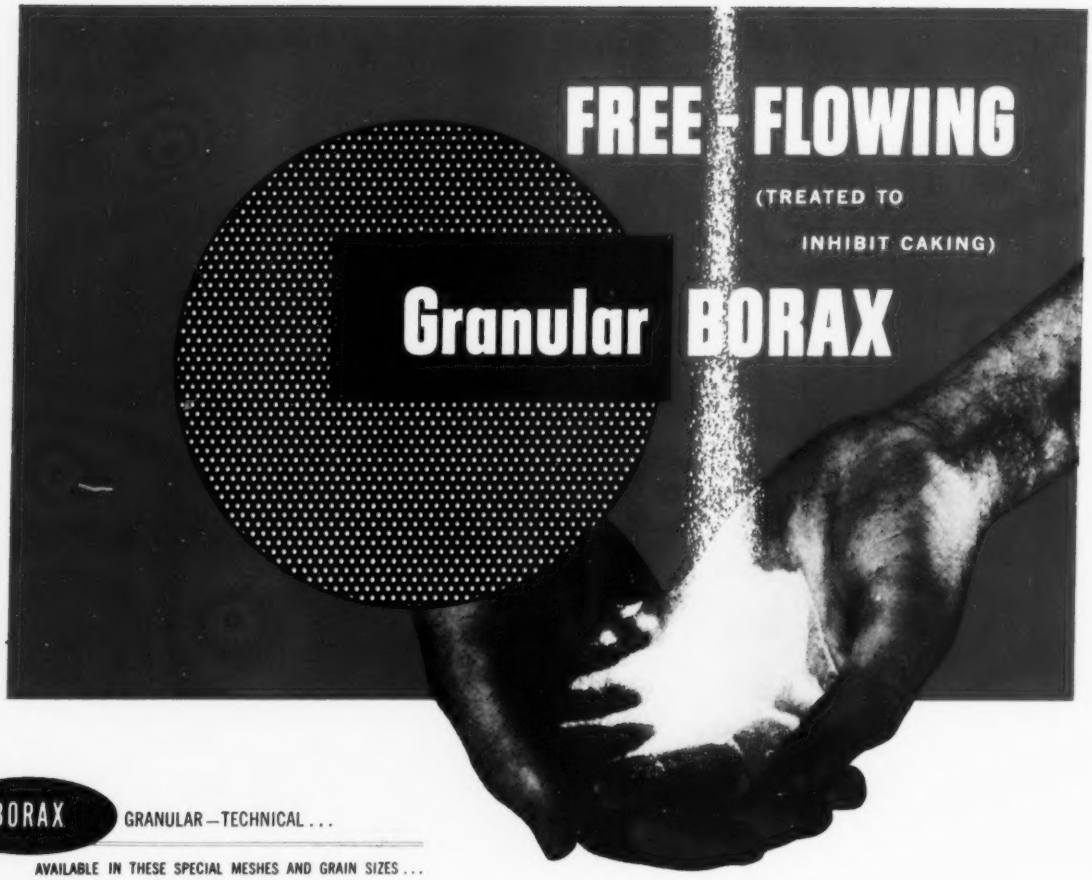
Publication Office
254 W. 31st St., New York 1, N. Y.
Telephone Bryant 9-4456

Chicago Office
612 N. Michigan Ave.

OFFICIAL PUBLICATION
CHEMICAL SPECIALTIES MANUFACTURERS ASSN.

Subscription rates: U. S., $4.00 per year; Canadian, $5.00; Foreign, $11.00 (two years only). Copy closing dates — 15th of month preceding month of issue for reading matter; 10th of month preceding month of issue for display advertising.

Single copies: Current issues, 50¢; all back issues, $1.00. Claims for missing copies must be received within 60 days of mailing date. Second class postage paid at New York, N. Y., and at Baltimore, Md.



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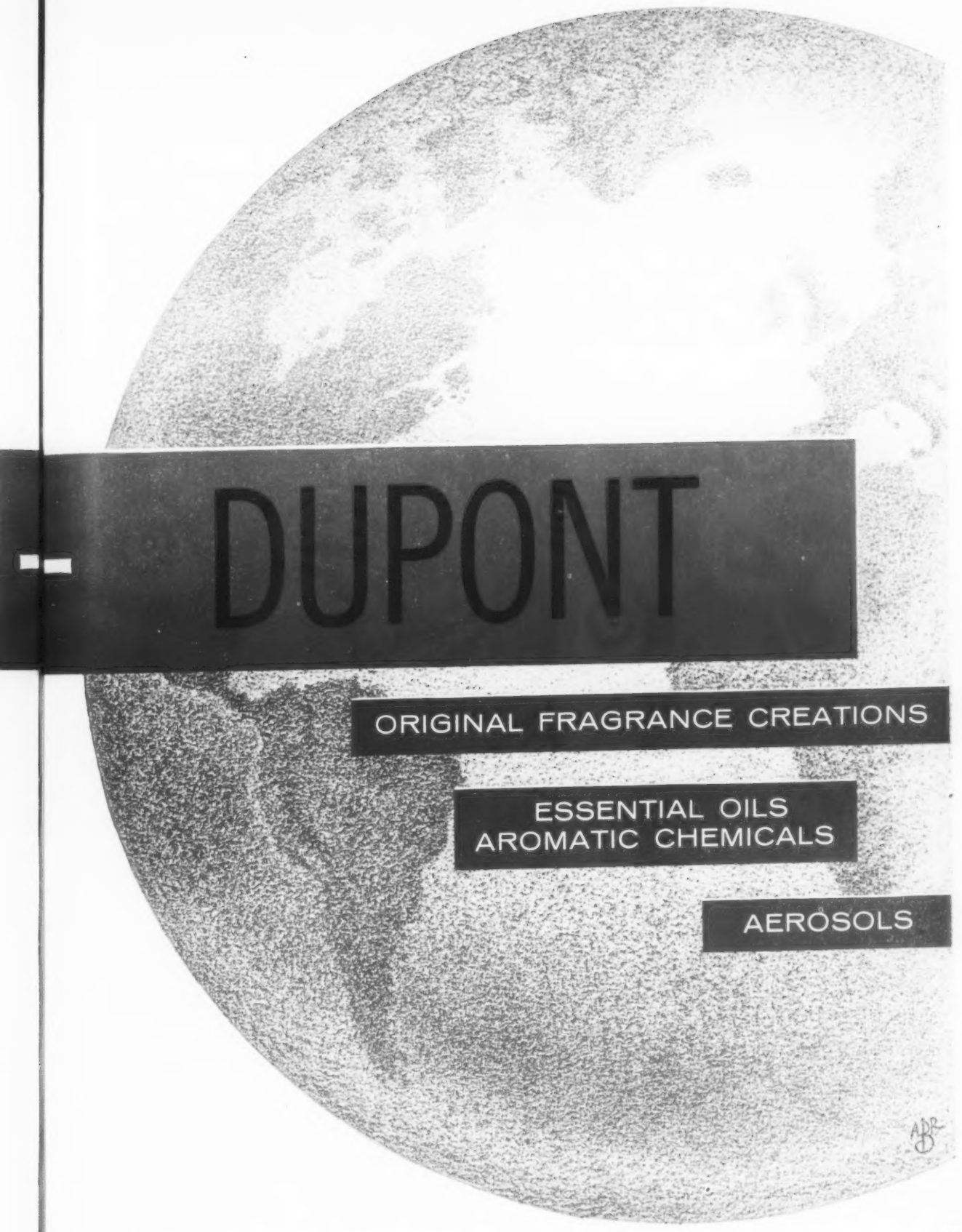
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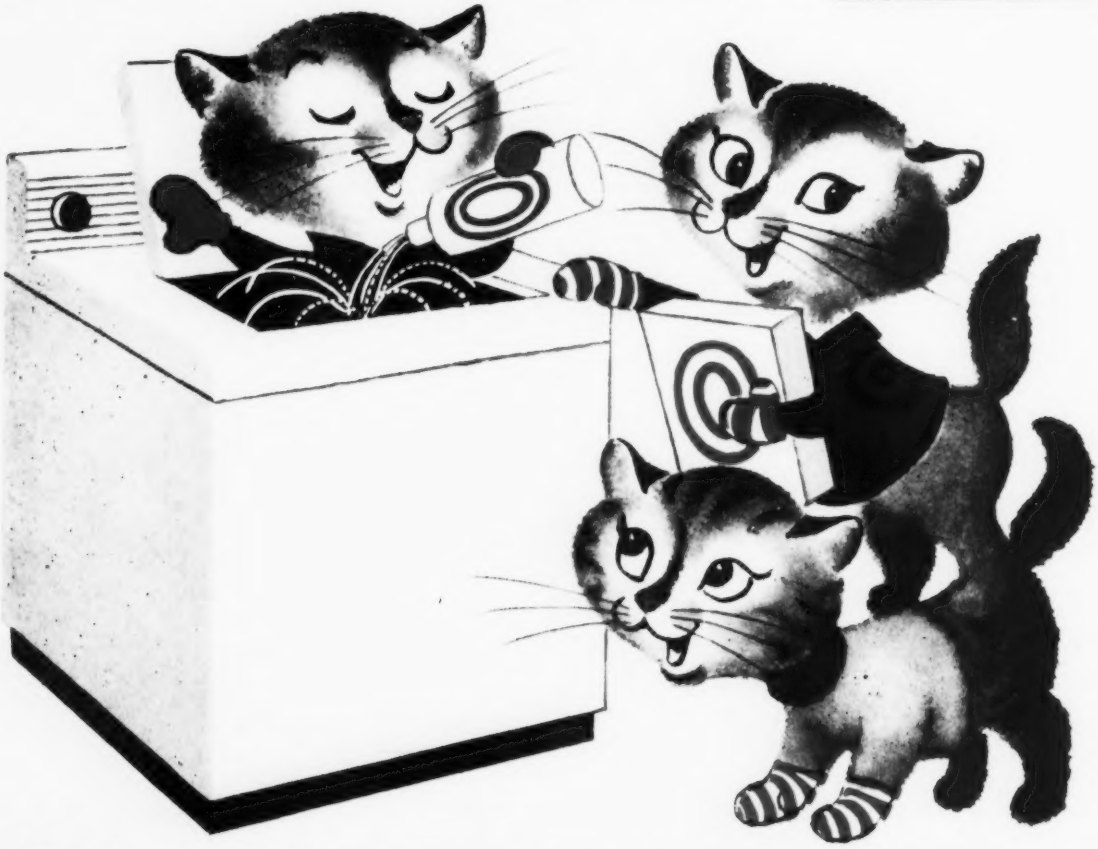

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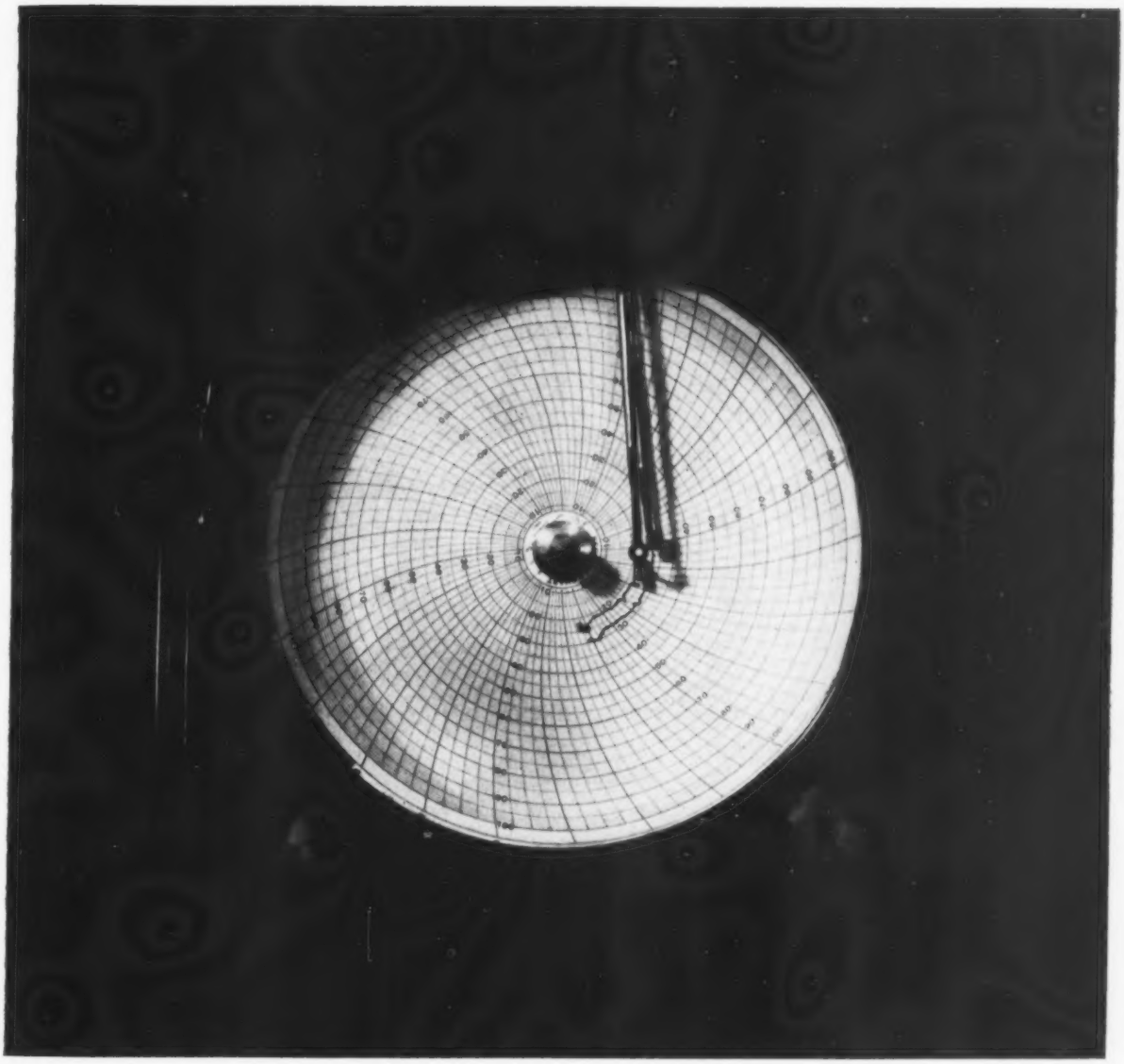

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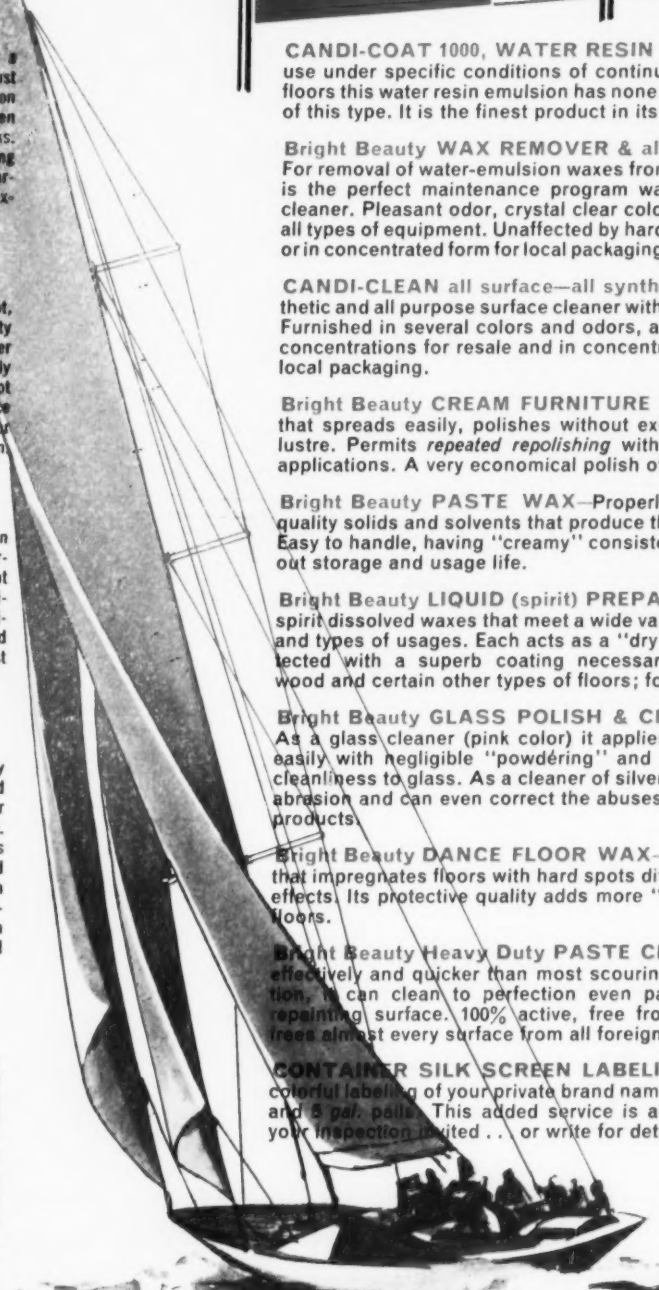

Beauty and Durability

Initial appearance is important, but for a waxed surface to remain beautiful, it must be durable. Durability depends not only on resistance to abrasion of traffic, but even more so on resistance to discoloring marks. Durability should be measured by how long the waxed surface maintains a nice appearance before complete removal and re-waxing is required.

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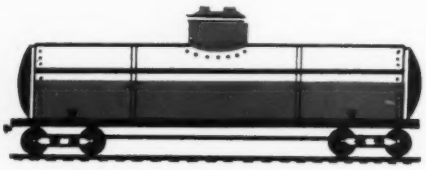
volume produce  a better alkylate,

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*Oronite's trademark for its detergent intermediate.

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After Closing

New Lever Research V. P.

Willard M. Bright was elected research and development vice-president of Lever Brothers

Willard M. Bright

Co., New York, it was announced early this month by Milton C. Mumford, president. He succeeds L. B. Parsons, who continues as a vice-president and director in a senior staff capacity. Joining the company in 1952 as assistant research director, Dr. Bright recently served as research and development director. Before he went with Lever, Dr. Bright was on the research staff of Kendall Co., New York, for 10 years.

—★—

Acquires Utility Co.

The acquisition of Utility Co., New York, maker of "Gre-Solvent" hand cleaner, by A. J. Siris Products Co., Bronx, manufacturers of powder puffs, was revealed late in February. Utility will be operated as a wholly owned subsidiary of Siris under the direction of David Stutts, executive vice-president of Utility. Mr. Stutts continues in this post under the new setup. Other officers of Siris are A. J. Siris, chairman; Herbert Siris, president; Burt Siris, secretary and treasurer.

Utility, which was founded in 1903 by David G. Holmes, had its first headquarters in Beekman St. in New York City. Four years later the firm moved to 636 W. 44th St., where it has remained for the past 53 years. Because the site on which the Utility plant and offices were located on 44th had been acquired by the City of New York, the hand cleaner firm was in the process of seeking a new plant location. Utility's offices have been moved to 160 Fifth Ave., New York 10.

When Utility's founder died in 1944, his daughter, Miss Marion Holmes, became president. The third generation of the Holmes family was represented in the business by David Paterson, who was secretary of Utility.

In addition to "Gre-Solvent," Utility manufactures a full line of powdered and industrial hand soaps, as well as a waterless hand cleaner, "Cope," which was introduced by the firm in 1954.

—★—

Pesticide Survey Set

A market and economic survey of agricultural pesticides will be undertaken soon by the industrial consultant firms of Robert S. First, Inc., 60 West 42nd St., New York 17, and O. W. Roskill, London, England. The comprehensive survey, scheduled for delivery to subcribers by September 1961, will be undertaken in three sections: the U. S.; the European Free Trade Association; and the European Common Market. Major objectives of the survey include a detailed analysis of the pesticide industry and determination of its marketing structure.

—★—

Stanley Station in Denver

A new distributing station for Stanley Home Products, Inc., Westfield, Mass., was recently opened at 5805 East 42nd Ave.. Denver, Colo. The building has 40,000 square feet of floor space for distribution and warehousing, according to William H. Naylor, vice-president and director of distribution.

—★—

Johnson Names Fitzgerald

Thomas L. Fitzgerald has been named field sales manager for the service products division

Thomas L. Fitzgerald

of S. C. Johnson & Son, Inc., Racine, Wis., it was announced last month by Edward J. Grant, division general manager. Mr. Fitzgerald directs sales of the company's maintenance industrial, and agricultural products in his new post. In addition, he supervises training and development of service products sales personnel in eight districts throughout the country. With Johnson since 1948, Mr. Fitzgerald was service products sales manager for the southeast district with offices in Atlanta, prior to his new appointment.

—★—

Reynolds to Lehn & Fink

William V. Reynolds has been appointed director of international operations for Lehn & Fink Products Corp., New York, it was announced last month by Edward Plaut, president. Formerly vice-president of the international division at Vick Chemical Co., New York, Mr. Reynolds now is responsible for overall direction of Lehn & Fink's international operations including subsidiaries with plants overseas.

New Officers at Dawe's

New officers were recently elected by Dawe's Laboratories, Inc., Chicago. Robert Cosgrove, formerly operations manager, is now vice-president of operations. D. B. Kinkaid has been elected vice-president of marketing. He had previously been marketing manager. George Ward, director of research, is now vice-president of research, and Elmer Olson, controller, has been elected treasurer.

—★—

Perfumers' Program

The American Society of Perfumers has released the program for its sixth annual open symposium to be held April 28 at the Essex House Hotel, New York. Theme of the symposium is "Abstract and Practical Thoughts in Perfumery." The program will start at 2:00 P.M. with an opening address by Bernard Polak of Polak's Frutal Works, president of the society. The symposium consisting of six papers will then get under way under the chairmanship of Walter Lengsfelder, Fleuroma, Inc. The following subjects will be discussed: "A Modern Approach to the Evaluation of Bergamot Oil," by Fred C. Theile, Donald Dean and Robert Suffis, all of Shulton, Inc.; "Fragrance and the American Male," by E. R. Van Liew, Givaudan-Delawanna, Inc.; and "The Influence of Human Temperament on Odor Selection." by Alfred H. Moeller, Noville Essential Oil Co.

The technical program will be interrupted briefly to present honorary membership to Edward S. Maurer, F.L. S., M.R.I. of London, England. The presentation will be made by Mr. Polak.

Oliver L. Marton of Shulton, Inc., will then speak on "Pitfalls in Perfumery;" Thomas Cifelli, Jr., of Richards and Cifelli, on "Perfumers and Patents;" and Walter Lengsfelder on "The Abstract Concept in Perfumery."

The papers will be followed by a discussion period at which Frazer V. Sinclair, publisher of *Drug & Cosmetic Industry* and *Beauty Fashion* magazines will act as moderator.

A cocktail hour and buffet dinner will conclude the meeting. These are included in the charge of $15.00.

—★—

New Morton Polystyrene

A new modified polystyrene latex, containing 50 per cent solids, was recently introduced to floor polish manufacturers by Morton Chemical Co., 110 N. Wacker Dr., Chicago. Tradenamed "R W L 110," the product is designed for application in both household and industrial floor polish formulations and is said to have properties found only in more costly polystyrene emulsions.

—★—

Givaudan L.A. Office Moves

The Los Angeles office of Givaudan-Delawanna, Inc., New York, and its associate companies, Givaudan Flavors, Inc., and Sindar Corp., moved to new quarters last month at suite no. 3, 6022 West Pico Blvd., Los Angeles 35, Telephone number of the new office is WEbster 9-3101.

DuBois Opens New Labs

DuBois Co. opened new laboratories last month on the top floor of the DuBois Building, 634 Broadway, Cincinnati. The new laboratories have separate work quarters for the study of mechanical dishwashing, flooring maintenance and polishing, non-thermal eating utensil sanitizing, applications of ultrasonic energy in degreasing industrial components, and other applications of the company's products for industrial and institutional use.

Other facilities include a technical library, conference area, and prototype and pilot working models of commercial machines as well as machines for mechanized dishwashing and barrel finishing. A "street of many colors" in the laboratory has successive sections of all types of floorings generally used in public buildings for theoretical and practical applications of DuBois cleaning, sanitizing, and polishing agents. The company was founded in 1920 as the DuBois Soap Co. and now has branch plants in New Jersey, Texas, and California.

Edward J. Breck, president of John H. Breck, Inc., Springfield, Mass., holds plaque his company recently received for the 1959 Benjamin Franklin Printing and Advertisement Award. With him is Juli Gosselon, Miss Printing Week of 1960. Breck was cited for "maintaining and promoting the highest standards of quality printing and advertising in all sales promotional media." The award was made by the local Springfield chapter of the International Association of Printing House Craftsmen and accepted for the company by Mr. Breck.

CSMA Names Committees for 1960

GEORGE W. Fiero of Esso Standard Oil Co., New York, president of the Chemical Specialties Manufacturers Association, recently announced division committee appointments. Chairmen of major committees and the committees follow. Where two names appear before a committee title, the first is that of the chairman and the second that of the vice-chairman.

General Committees

Charles E. Beach, John C. Stalfort & Sons, Inc., Baltimore, Executive; Frederick G. Lodes, Lodes Aerosol Consultants, Inc., Budget and Finance and Pension Administration; Gordon M. Baird, Baird & McGuire, Inc., and Melvin Fuld, Fuld Brothers, Inc., Policy Advisory; Emil G. Klarmann, Lehn & Fink Products Corp., and George T. Scriba, Union Carbide Chemicals Co., Precautionary Labeling; H. W. Hamilton, CSMA, and James E. Ferris, Hooker Chemical Corp., Membership; Charles E. Allderdice, Jr., Bell Co., Program and Entertainment; H. W. Hamilton, Arrangements; W. C. Wallstein, West Chemical Products, Inc., Greetings; Robert J. Hamilton, General Aniline & Film Corp., Publicity and Public Relations; Henry E. Blanchford, Mantrose Corp., Associate Members; Perry G. Bartlett, West Chemical, Publication Advisory; and A. G. Bowers, Pioneer Manufacturing Co., Product Certification.

Aerosol Division

E. J. McKernan, E. J. McKernan Co., and George Barr, G. Barr & Co., Executive Board; R. W. Svendsen, Chase Products Co., Commercial Standards; J. J. Tomlinson, Allied Chemical Corp., Aerosol Market Development and Publicity; E. E. Husted, Union Carbide Chemicals Co., Products Survey; J. J. Tomlinson and George Barr, Program; Charles E. Beach, Post Office Policy; and Walter C. Beard, Risdon Manufacturing Co., chairman, Morris Root, G. Barr & Co., first vice-chairman, and Fred T. Reed, Du Pont, second vice-chairman, Scientific committee.

Automotive Division

C. A. Weslager, Du Pont, and A. E. Tongue, Olin Mathieson Chemical Corp., Executive Board; Donald H. Hanson, R. M. Hollingshead Corp., Brake Fluid; Myron Frank, Dow Chemical Co., and Stanley W. Coryell, R. M. Hollingshead, Scientific; A. E. Tongue, Program; J. C. Crawford, Commercial Solvents Corp., Antifreeze; J. M. Russ, Union Carbide, Products; C. M. White, Olin Mathieson, Special Committee to Study Hazardous Substances Labeling Laws; and Harold G. Lederer, R. M. Hollingshead Corp., SAE Liaison.

Detergent and Cleaning Compounds

W. S. Jessop, U. S. Sanitary Specialties Corp., and Lester D. Berger, Jr., Union Carbide, Executive Board; L. G. Wizemann, Allied Chemical Corp., and P. G. Bartlett, Commercial Standards; R. K. Rigger, Wyandotte Chemicals Corp., and A. H. Milask, Atlantic Refining Co., Philadelphia, Program; D. H. Terry, and Melvin Fuld, Specifications Review; J. C. Harris, Monsanto Chemical Co., and Louis E. Wells, Jr., Dumas Milner Corp., Scientific; and George Hopper, Procter & Gamble Co., Precautionary Labeling.

Disinfectant and Sanitizers Div.

F. R. Geib, Dow, and Claude J. D'Angio, Airkem, Inc., Executive Board; Claude J. D'Angio, Airkem, Program; Robert F. Prindle, Lehn & Fink Products Corp., and C. W. Darby, Ralston Purina Co., Scientific.

Insecticide Division

Alfred Weed, Olin Mathieson, and Mark L. Hill, Gulf Oil Corp., Executive Board; Mark L. Hill, Gulf Oil, Program; J. B. Moore, McLaughlin, Gormley King Co., Scientific.

Waxes and Floor Finishes Division

Earl Brenn, Huntington Laboratories, Inc., and Gerald R. DeNapoli, Masury-Young Co., Executive Board; Daniel Schoenholz, Foster D. Snell, Inc., Product Development; Howard J. Wilhoyte, Du Pont, Program; A. E. Budner, S. C. Johnson & Son, Inc., and Al Candy, Candy & Co., co-chairmen, Research and Public Relations; D. H. Terry, Labeling; and Gerard R. DeNapoli, Scientific.

—★—

O-M Appoints Two

The appointments of Vernon Woodside as manager of sales development for heavy chemicals and J. L. Pickens as manager of field sales for heavy chemicals in the chemicals division of Olin-Mathieson Chemical Corp., New York, were announced last month by John O. Logan, vice-president and associate general manager. Both men are located in Baltimore. Formerly district sales manager in the New Orleans office, Mr. Woodside is succeeded by George H. Nusloch, a sales representative. Mr. Pickens was district manager at the Houston, Tex., sales office and is succeeded there by M. E. Shoemaker, who was assistant product manager of the acids-sulfur operations.

J. L. Pickens

V. Woodside

—★—

Revlon Sales, Earnings Up

Net sales of Revlon, Inc., New York, increased by 13.2 per cent in 1959 over the previous peak of $110,363,070, established in 1958. Net sales last year were $124,939,712. Net earnings rose by 11.9 per cent, from $9,688,307, or $3.75 per share in 1958, to $10,836,797, or $4.19 per share last year.

—★—

Gould at Colgate Lab

The appointment of David H. Gould as administrator of grant research at the laboratory for oral health research of Colgate-Palmolive Co., New York, was announced last month by Joseph H. Brant, director of corporate research and development. The laboratory is located on the science campus of Rutgers University, New Brunswick, N. J. In his newly created post, Dr. Gould is responsible for studies in the oral health field undertaken throughout the country with the laboratory's support.

—★—

Wyandotte Sales Increase

Wyandotte Chemicals Corp., Wyandotte, Mich., increased its sales by 14 per cent and its earnings by 55 per cent in 1959 compared with 1958, Robert B. Semple, president, reported last month. Net sales were $93,893,798 last year, compared with $82,116,603 in 1958. Earnings were $4.501,545, or $2.80 per share, in 1959, compared with $2,902,642, or $1.67 per share for the previous year.

Sonneborn Adopts New Name, Co. Symbol

A NEW corporate name and a new company-designed symbol were adopted Feb. 23 by L. Sonneborn Sons, Inc., 57-year-old manufacturer of chemical specialties and petroleum refiner. Sonneborn Chemical and Refining Corporation is the new name. Sonneborn has petroleum refineries at Petrolia, Pa., and Franklin, Pa., and operates a plant in Belleville, N. J., for making building and maintenance specialties, "Whistlclean" brand industrial detergents and related products. In petroleum refining, Sonneborn specializes in petroleum sulfonates, white oils (medicinal, cosmetic and technical), petroleum waxes, technical petrolatums and motor oils and lubricants.

In announcing the name change and the adoption of a new corporate symbol, Rudolf G. Sonneborn, president, said that they "present a more meaningful picture of our company's activities."

In addition to being a leading producer of white oil, which results from the refining of the petroleum fraction, the company's specialized knowledge of petroleum products has led to another field of specialization - microcrystalline waxes.

Because Sonneborn recognized the importance of research early in its history, the company has on its staff an "unusually high" percentage of chemists and engineers. The company's activities in research also led it into the area of products for building construction and maintenance. Sonneborn entered this field at just about the time that concrete became a major factor in building. The first building product marketed by Sonneborn was called "Lapidolith," a chemical formulation which prevents dusting and increases the hardness of concrete, according to Sonneborn, by some 1,000 per cent.

The success of this product led company researchers to develop other materials including water repellents, damp proofers, concrete admixtures, roof coatings, caulking compounds, concrete and wood flooring treatments, including waxes, paints, protective coatings, industrial detergents, etc.

More than 70 building and construction products in all are currently manufactured by the company, which publishes and distributes a complete Building Construction and Maintenance Handbook every year.

Company headquarters are located at 300 Park Ave. South, while the Building Products Division maintains offices at 404 Park Ave. South, both in New York. Branch offices are located in Philadelphia, Boston, Baltimore, Detroit, Chicago, Los Angeles, Dallas, Houston and Toronto.

A group of vice-presidents of Sonneborn Chemical and Refining Corp. discuss company's new logotype and symbol. In group are (left to right): Gustav Schindler, Dr. Henry Sonneborn, III, Rudolph Cubicciotti (standing) and Dr. Erich Meyer.

—★—

P & G Increases Dividend

Procter & Gamble Co., Cincinnati, declared a quarterly dividend of 65 cents per common stock share last month, an increase of 10 cents on the previous quarterly rate. On an annual basis the new dividend rate equals $2.60 per share. It was payable February 15 to shareholders of record on January 22.

—★—

Gordon Joins Onyx

Norman Gordon was recently appointed to the sales staff of Onyx Oil & Chemical Co., Jersey City, N. J. Formerly with Polak & Schwarz, Inc., New York perfuming materials and flavor firm, Mr. Gordon has been assigned to the Chicago office of Onyx. His territory includes Missouri, Kentucky, Kansas, Arkansas, and Oklahoma.

—★—

Hart Producing Colors

Hart Products Corp., New York, recently began production of "Hartochrome" colors, a series of water-phase pigment emulsions for use in the textile printing industry. Announcement of the start of production coincided with the company's observance of its 40th anniversary marked by a technical and sales meeting at its Jersey City, N. J., laboratories. At the meeting, Maurice Renner, head of the technical staff of the pigment division, demonstrated and showed recently installed production and evaluation equipment for "Hartochrome" colors.

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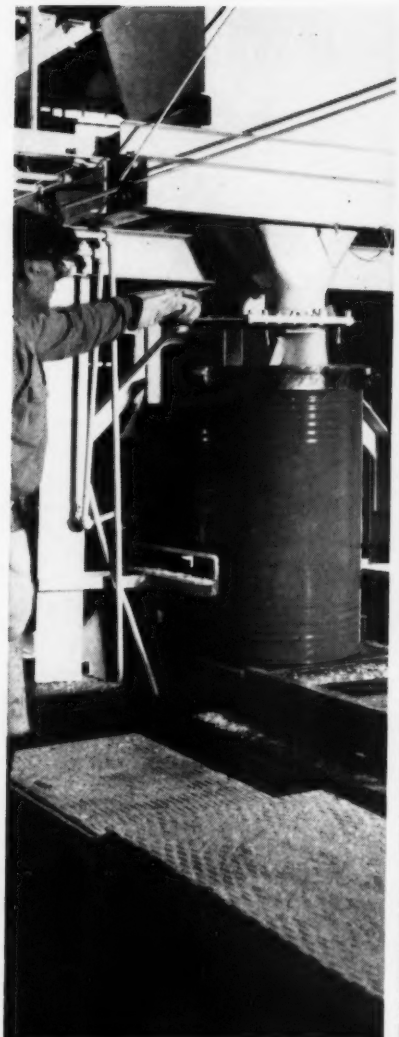
HOW TO BUY CAUSTIC SODA EXPERTLY

Jerry W. trimmed a tidy two thousand dollars from shipping costs. When process needs for liquid caustic inched up in Jerry's plant, freight costs galloped along beside them. Jerry's Hooker man suggested a switch to barge delivery. Together, they worked out purchasing and shipping schedules—and a solid saving on freight.

All Hooker plants and most stock points are on or near deep water. If you use large amounts of 50% liquid caustic soda, and you can take water delivery, **you** might save with barge shipping.



Ralph S. repackaged the size he ordered. Ralph's company wanted to add a new product to its line of cleansers. Problem: to get a flake caustic soda that wouldn't dust off to a smaller size. When Ralph placed his next order for caustic, he discussed flake sizes with his Hooker representative. Result: he found there **was** no problem. Flake sizes are tightly controlled at Hooker. Flake is thick enough to stand up in shipping. Ralph was able to get the size he ordered, without waste.

A purchasing agent helped design his plant's caustic soda handling system. When Elmer K.'s plant was modernized, its caustic handling system became hopelessly outdated. Elmer tipped off the plant superintendent about the design assistance available from Hooker. They called their Hooker man who put them in touch with a Hooker engineer. As a result, the whole system was revamped along more efficient lines—with engineering help from Hooker that cost Elmer's company nothing.

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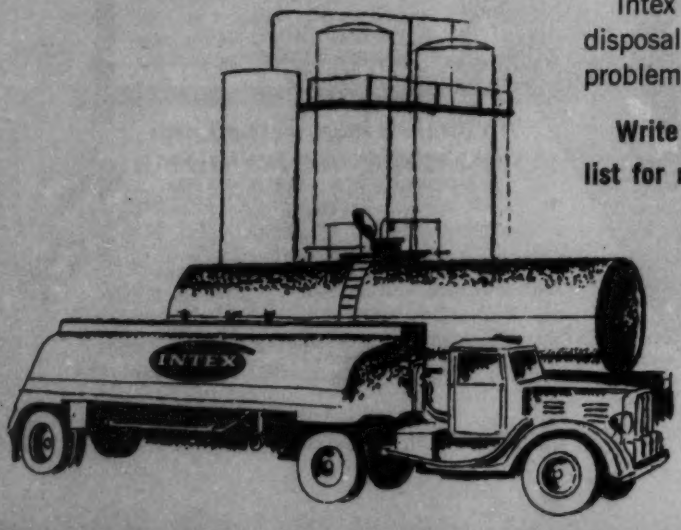

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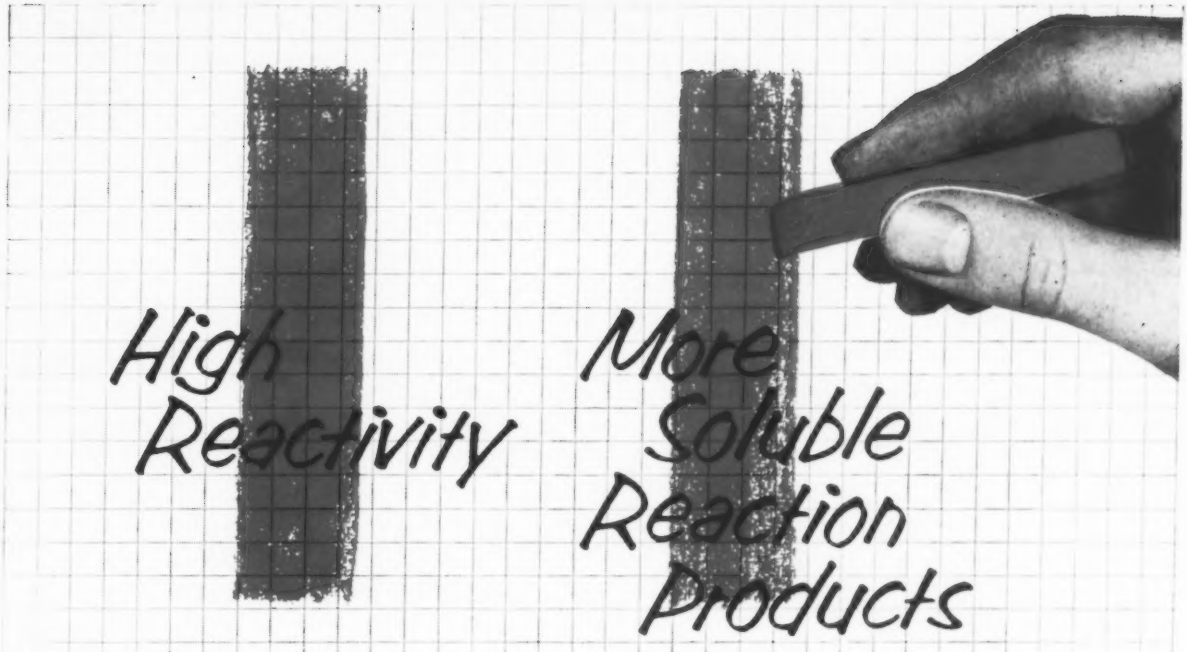

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☐ 2. Organic Solvents, completely revised second edition by Riddick and Toops. 560 pages including tables of physical properties of 254 solvents. Covers physical properties and methods of purification. Price: $10.00.

☐ 3. Surface Active Agents and Detergents, by Schwartz-Perry. Two volumes. Volume I: 590 pages, 51 illus., 4 tables. Covers processes for synthesizing and manufacturing surface active agents, physical chemistry of surface active agents and practical applications of surface active agents. Price: $13.50. Volume II: Approximately 860 pages, approximately 26 illus. and tables. Covers processing for synthesizing and manufacturing surfactants, special function surfactants and compositions, the physical and colloidal chemistry of surfactants and practical applications of surfactants. Price: $19.50.

☐ 4. Detergent Evaluation and Testing, by Jay C. Harris. 220 pages, 26 illus., 15 tables. A critical selection of methods and procedures for the testing of detergents. Price: $4.50.

☐ 5. Organic Insecticides, by R. L. Metcalf. 402 pages, 7 illus., 70 tables. Covers most organic insecticides, their chemistry and their mode of action. Price: $10.00.

☐ 6. Advances in Pest Control Research, edited by R. L. Metcalf. Volume I: 522 pages, 11 illus., 13 tables. Covers the most recent advances in all phases of the applied science of pest control. Price $12.50. (Volume II also $12.50)

☐ 7. Pressurized Packaging (Aerosols), by A. Herzka and J. Pickthall. 411 pages, 19 chapters, well illustrated. The first complete work on aerosols yet to be published. Covers propellants, filling techniques, laboratory testing, dispenser components, and formulations of most aerosol products. Includes an index of aerosol trade names and glossary of terms. Price: $12.00.

☐ 8. Handbook of Cosmetic Materials, by Greenberg-Lester. 467 pages. Covers the properties, uses and toxic and dermatological actions of over 1,000 materials selected in response to a questionnaire sent to cosmetic manufacturers. Includes a chapter on the skin by Howard W. Haggard, Director, Applied Physiology Laboratory, Yale University. Price: $13.50.

☐ 9. Soap Manufacture, by Davidson et al, in two volumes. Volume I: 537 pages, 66 illus., 118 tables. Covers the history of the soap industry, theoretical principles of soap manufacture, raw materials of soap manufacture and the fatty raw materials. Price: $13.50. (Volume II in preparation)

☐ 10. Cosmetics: Science and Technology, edited by Edward Sagarin. 1453 pages, 138 illus., 107 tables. Covers origin, development of cosmetic science and discusses individual products such as hand creams, suntan preparations, skin lighteners, shaving soaps and creams, nail polishes and removers, deodorants, aerosol cosmetics and many other cosmetic and toiletry products. Price: $27.50.

☐ 11. Industrial Oil and Fat Products, by Alton E. Bailey. 991 pages, 164 illus. 133 tables. Covers the nature of fats and oils, their composition and structure; raw materials; industrial utilization. Price: $18.00.

☐ 12. Fatty Acids, by Klare S. Markley. 678 pages, 81 illus., 163 tables. The chemistry and physical properties of fats and waxes. Price: $14.50.

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Stronger bubbles are longer lasting bubbles, and Pilot HD-90 gives thicker-wall bubbles. To formulators this means *less foam stabilizers* needed to do the job, and a significant product-cost-saving.

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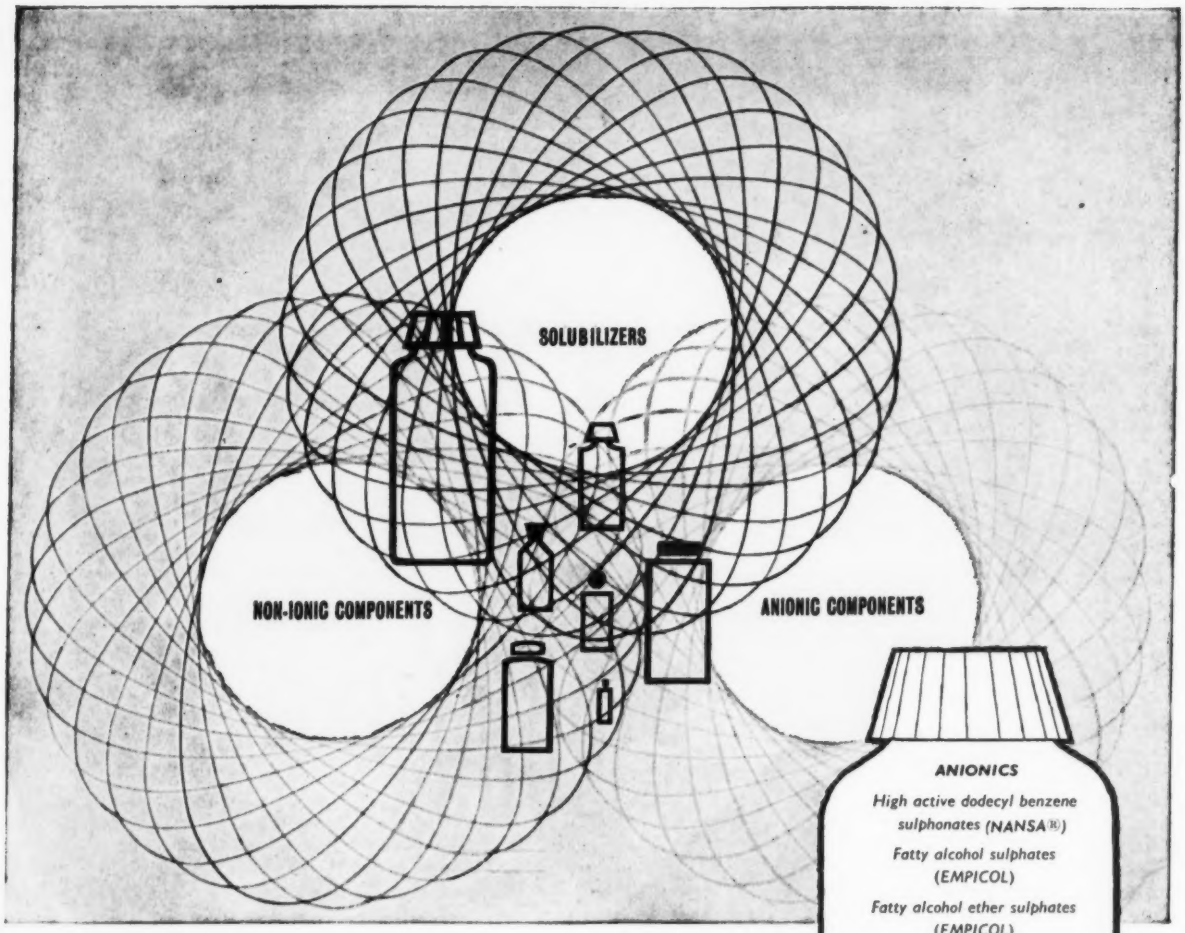
Anionics Non-ionics Solubilizers



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The top-selling brands are utilizing "SALES-MINDED FRAGRANCES" to gain their place in today's markets. Quality perfumes, expertly designed and engineered to perform a "Sales" function are replacing the traditional "SOAP ODORS" of yesterday. van Ameringen-Haebler, leading creators and manufacturers of fine perfumes and fragrances for all types of products, has the unequalled experience and ability to suggest a new, effective "Sales-Minded Fragrance" for your soap.

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Putting Ideas to Work

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General Sales Offices:
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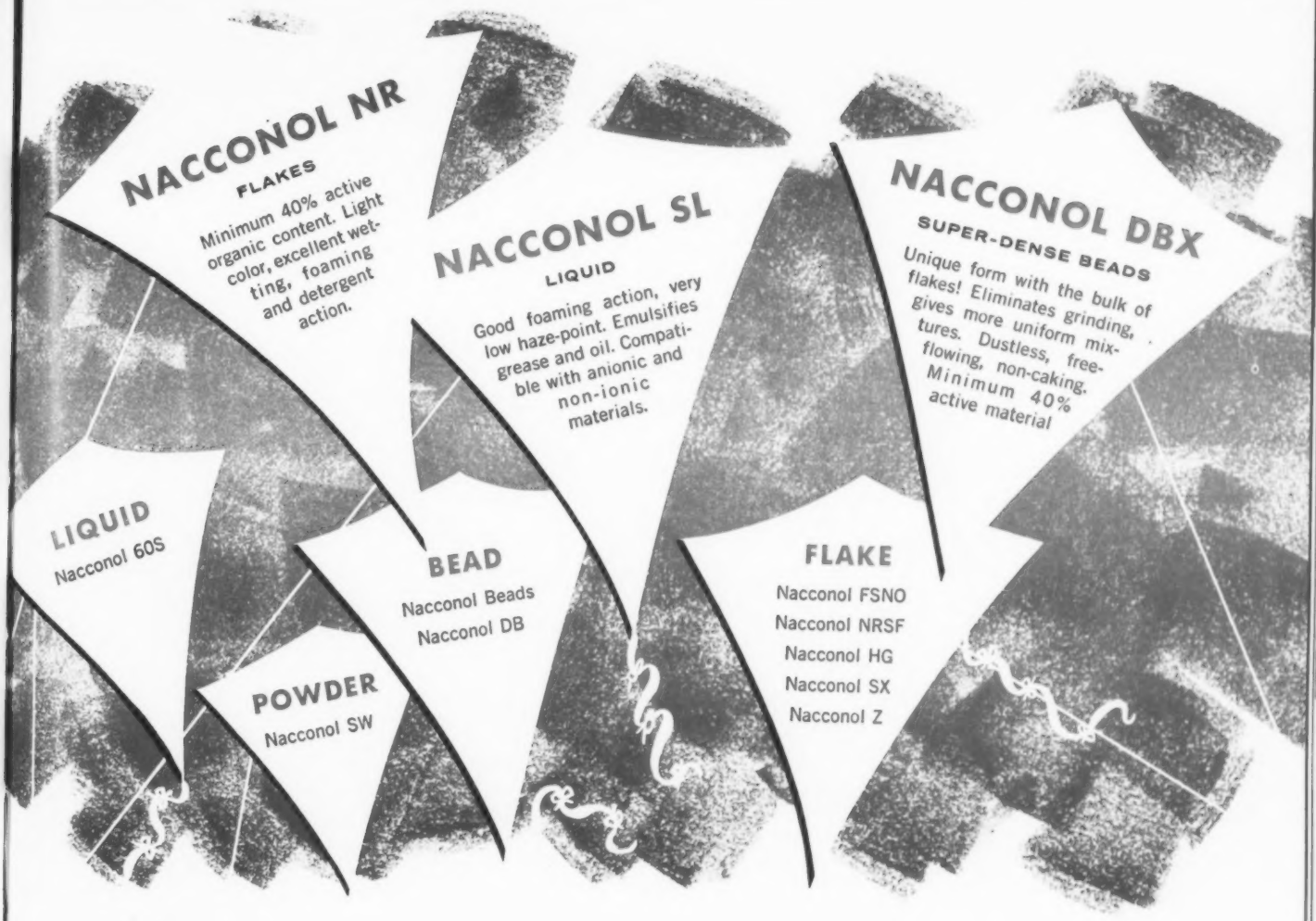

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ALKYL ARYL SULFONATE

keep detergent sales soaring!

Whatever your formulation, there's a form of Nacconol to enhance its effectiveness and sales appeal. Whichever form you use, you get uniformly high quality, the same physical characteristics and dependable detergent efficiency shipment after shipment. Best of all, this extra value is available at no extra cost—making Nacconol your best detergent buy. For additional information, samples and quotations, call our nearest office.

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for soap, detergents and chemical specialties

Allied's Mono-, Di-, and Triethanolamines are manufactured by an improved process which assures their high quality and purity for use in:

SOAPS AND DETERGENTS The Ethanolamines are important ingredients in many soaps and detergents for household and industrial use. They form excellent suds boosters which function in cold hard water to produce foam of improved stability.

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COSMETICS AND TOILETRIES Triethanolamine Stearate is used in many cosmetic preparations. Its freedom from irritating skin effects makes it especially advantageous. Triethanolamine and Monoethanolamine fatty acid esters are used as dispersing agents in the formulation of shaving creams, hair tonics, shampoos and other preparations of this nature.

POLISHES Monoethanolamine and Triethanolamine are used as the emulsifying agents in the preparation of all types of wax polishes for automobiles, furniture, floors, shoes and metals . . . as well as in various DISINFECTANT, TEXTILE SCOURING, INSECTICIDE, HERBICIDE AND DRY CLEANING formulations.

(SEE SPECIFICATIONS CHART ATTACHED) For further technical data, and for information on price and delivery, write us at address listed below.

SHIPPING STANDARDS — ALLIED TECHNICAL ETHANOLAMINES

Specific Gravity 20/20°C	1.017-1.021	1.090-1.095*	1.1220-1.1300	1.1240-1.1290
Boiling Range — ASTM	I.B.P. 165°C min. D.P. 175° max.	— —	— —	— —
Color — APHA	20 max.	40 max.	100 max.	100 max.
Suspended Matter	Substantially Free	Substantially Free	Substantially Free	Substantially Free
Equivalent Weight	61-63	104-106	140-145	147-152
Odor	Mildly ammoniacal	—	Mildly ammoniacal	Mildly ammoniacal
Water	—	0.15 wt. % max.	0.5 wt. % max.	0.5 wt. % max.
MEA Content	—	1.0 wt. % max.	1.5 wt. % max.	—
DEA Content	—	98.50 wt. % min.	15.0 wt. % max.	—
TEA Content	—	1.0 wt. % max.	85.0 wt. % min.	98.0 wt. % min.
Iron	—	—	—	0.003 wt. % max.
		*30/20°C		

Allied Chemical

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Rare as the far ranging
imagination of the poet
FLEUROMA contributes to the
science of chemical specialties
the distinctive and unusual in
perfume compounds. With the true
creativity that admits of no
limitation, FLEUROMA offers fragrance
horizons as broad as the combined
possibilities of chemistry and
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different angles to give you
"new perspectives in perfumery."
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G-11®

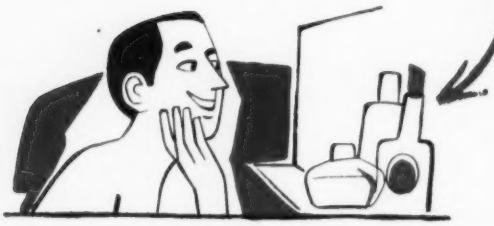
(HEXACHLOROPHENE U. S. P.)

with its unique degerming and antiseptic action, was the key to increased sales and broadened markets *for all these products:*

SOAPS

Waterless Hand Cleaners
Detergents
Shampoos

Deodorant
Antiseptic
Surgical Scrub
Medicated



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Antiseptic Ointments
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Protective Hand Creams
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Deodorant Creams
Deodorant Sticks
Deodorant Colognes
Deodorant Powder
Anti-perspirants
Baby Lotions
Baby Powders
Hand Lotions
Face Creams
Shampoos

Acne Lotions
Menthol Lotions and Ointments
Anti-infectives
Surgical Rubber Goods
Lip Pomades
Aerosol Foot Sprays

Skin Conditioners
Dusting Powders
Hair Dressings
Antiseptic Creams
Aftershave Lotions

Perhaps G-11 is exactly what *your* product needs to give it a competitive advantage in your markets. Sindar invites you to phone, wire or write for full information.

SINDAR® *Corporation*
Industrial Aromatics and Chemicals
321 West 44th Street, New York 36, N. Y.

. . . IN BRIEF

as the editor sees it . . .

ODOR . . . Recently we have looked into the subject of heavy duty household liquid cleansers and their perfumes. We have come up with some rather pronounced ideas, especially of what not to do in the way of perfuming these cleansers. A couple of bad examples which have had little market success have brought this matter to our attention. We conclude that a household heavy duty cleanser should smell like a heavy duty cleanser and the housewife expects it to smell like it can do heavy duty cleaning.

Floral or sweet odors which give a heavy duty cleanser the aroma of "up in Mary's room" are incongruous and do not fit the product. We believe sales experience bears this out. Housewives associate odor with the character of any product. In a heavy duty product, they do not want it obviously perfumed. They expect it to smell like pine or some other "clean" or "working" odor, an odor which they do not associate with a perfume but with the product itself. All this is ABC stuff to the experienced perfumer, but apparently not to some manufacturers and marketers. A product can be damned before it ever hits the market by the wrong perfume.

* * * * *

AEROSOL FUND . . . This is the fourth year in which the committee on aerosol sales promotion and publicity of the Aerosol Division of the Chemical Specialties Manufacturers Association is collecting a special fund to push the sale of pressure packages. For three years, rather successful publicity campaigns have been conducted in behalf of aerosols within the scope of the funds available. But the contributors to the campaigns have been too much restricted to suppliers of raw materials, containers, valves, and to a few leading custom fillers. A few marketers of pressure packages have chipped in. However, there are a number of important marketers with a large stake in aerosols who have not. And this is the group which in reality gets the greatest good out of a well-conducted publicity campaign to boost the sale of all aerosols. A dozen executives volunteer many hours of their time to put across these campaigns. We feel that their efforts warrant the support of every aerosol marketer in proportion to his stake in the field.

* * * * *

SALES . . . Sales of soaps and detergents reached another new peak in 1959, according to the sales census figures of the Soap Association. Compared with 1958, itself the prior peak year, sales were up 4.4 per cent in tonnage and 5.1 per cent in value. Synthetic detergent sales showed an increase in 1959 of 8.5 per cent over the previous year taking an even 75 per cent of the total soap-detergent market. Soap sales in 1959 showed a continuation of the downward trend of former years, last year being 5.4 per cent under 1958 in tonnage. Scouring cleanser sales continued to move upward in 1959 showing a gain of 4.6 per cent over 1958.

Over the past eight or ten years, soap-detergent cleanser sales have conformed pretty much to the same pattern, detergents and cleansers up around 5 per cent a year, soaps down about the same. Detergent gains have been at the expense of soap. We believe that this pattern is likely to continue as long as population continues to mount and as long as employment remains at the high level of 1959 and its immediate predecessors. Another stimulant to sales is probably the fact that soap-detergent prices have continued reasonably low, extremely low

When it comes to

PHOSPHATES

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ANHYDROUS, POWDER & GRANULAR

TRISODIUM PHOSPHATE
FLAKE, CRYSTAL & ANHYDROUS

TETRASODIUM PYROPHOSPHATE
ANHYDROUS & CRYSTAL, REAGENT

SODIUM PHOSPHATE
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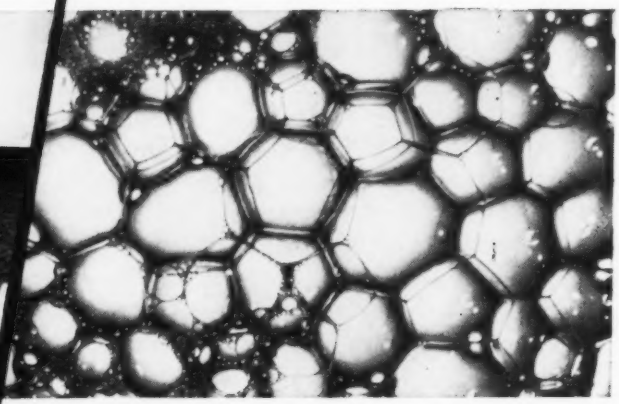
DISODIUM PHOSPHATE
ANHYDROUS

POTASSIUM PHOSPHATE
MONO & DIBASIC, PURIFIED

Also—PHOSPHORIC ACID
WET PROCESS, 65% & 75%
Com'l & Fertilizer Grades
FOOD GRADE, 75%
N.F., 85%



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GENERAL CHEMICAL

Whatever your phosphate requirements—for soaps, synthetic detergents, alkaline cleaners . . . in oil well drilling . . . in textile processing . . . as deflocculating and dispersing agents . . . as water softeners . . . you can depend on General to supply phosphates as you want them, when you want them! Those listed here are available in a variety of forms, suited to every need. All offer the high quality and uniformity for which General Chemical—a primary, pioneer producer—has long been known. Stocks are carried at key distribution points, coast to coast. For your needs—write or phone today for specific information.

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GENERAL CHEMICAL DIVISION

40 Rector Street, New York 6, N. Y.

when compared with wages and commodity prices of the past year or two.

* * * * *

HOW LONG? . . . How long do you wear your shirt? This is an important matter to a soap and detergent manufacturer because the more often you change your shirt the better he likes it. Anyway, an article in *Seifen, Oele, Fette, Wachse* recently reported on a survey made in West Germany on this burning question. The results were rather startling. Ten per cent change their shirts every second day. Apparently, nobody wears a shirt just one day as no figures on this effete custom were reported. Twenty per cent wear shirts three to five days. About 45 per cent wear their shirts one week, mostly white collar workers. Five per cent wear their shirts for 12 days and 4 per cent for a fortnight or longer. And beyond that, we surmise the survey did not go.

The author of the article sees lots of room for improvement in German cleanliness even though detergent use averaged upwards of about 7 per cent and toilet soap use over 8 per cent in 1959. Looking over the survey, we get the idea that the German shirt routine is probably not too far away from the figures for Britain and North Europe. In France, Italy and Spain, we hear tell that they wear their shirts longer, much longer. In the U. S., judging from per capita soap use, shirts are changed more often, although this would not seem to be borne out by one's nose in crowded subways or busses on any Friday night.

* * * * *

SHAMPOO . . . A Florida woman is suing a well-known shampoo manufacturer because she claims her hair fell out after using their shampoo. She is also suing the drug store where she bought the product. And she emphasizes that she used the shampoo according to directions. Well, we suppose that's only natural. It's a cinch that she wouldn't state that she didn't use it according directions. And to add to her troubles, use of the shampoo, she claims, has made her allergic to the touch of certain types of metals.

Now it so happens that many thousands of bottles of this same shampoo have been sold all over the country. So far, we have not heard of any cases where it removed the user's hair. We assume that it was all the same formula. We doubt that the manufacturer would make up one bottle of different formula and send it to her druggist so it could be sold to the lady in question. So if it didn't affect a million or so other users, how come it did this dame dirt? Are her own allergies or the shampoo at fault? What other circumstances are involved besides the use of a shampoo?

Cases of this kind are the plague of a manufacturer's existence. Most of them completely baseless, they must nevertheless be defended at considerable cost. Some are strictly phoney, few are sincere, hardly any are based on fact. But they seem to be the price a manufacturer pays for just being in business.

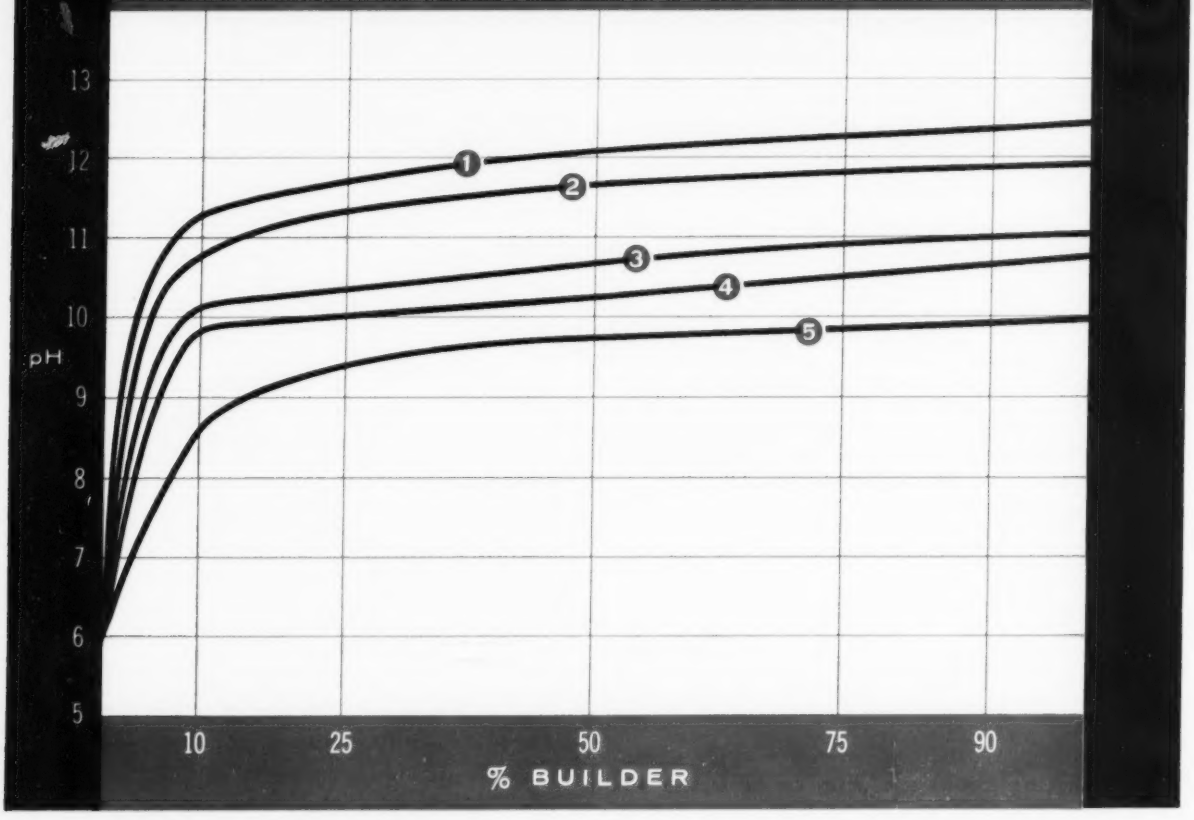
* * * * *

SHOCKING . . . Sometimes it's difficult to understand just what is happening in Washington. Now they tell us that they have covered parts of the beautiful vinyl tile floors in the new Senate office building with carpet. We were under the impression that the Senate had quashed this carpet business and instead the floors were to be covered with non-skid wax, a product readily available. It seems, however, that some senators are partial to carpet and had some put down in and around their offices. Whereas, their cutie office help in high stilletto heels were formerly slipping and bumping their fannies, they now are being shocked out of their wits by static.

This is indeed a sorry state of affairs. They reach for a doorknob and — wango! — a real kick from finger tips to shoulder. And that's what they get for putting down new carpet in cold weather. This static is likewise no respecter of persons. August senators get shocked along with the sweet young things. Imagine a senator shaking hands with a constituent and giving said constituent the electric needle, as it were. It's bad. Some senators are worried.

Well, we told 'em that a good non-skid wax was the thing to use. The senators who put down carpet are getting what is coming to them. But maybe somebody could sell them a little anti-static spray or something. We hear the stuff works real well.

CLEANING ACTION IN HEAVY DUTY
liquid detergents with PQ soluble silicates



pH at 25° C. of 0.2% Synthetic Detergent-Builder Mixtures in 50 P. P. M. Hard Water

1. Caustic
2. Metso Granular, sodium metasilicate pentahydrate Molecular Ratio 1:1
3. C Sodium Silicate 59° Baume Ratio $\%Na_2O:\%SiO_2$, 1:2.0
4. N Sodium Silicate 41° Baume Ratio $\%Na_2O:\%SiO_2$, 1:3.22
5. Pyrophosphate

For liquid detergents, the PQ soluble silicates supply high cleaning activity for stubborn soils. They quickly break up grease, oils and fats and suspend the soil until rinsed away. The buffering property of the silicates holds the solution at a sustained pH for effective cleaning.

PQ silicate is indeed an efficient builder, performing all features of detergency economically—emulsification, saponification, deflocculation, suspension and prevention of redeposition of soil.

No wonder more and more synthetic detergents are built with PQ soluble silicates.

PQ SOLUBLE SILICATES
SODIUM SILICATES • POTASSIUM SILICATES

PHILADELPHIA QUARTZ COMPANY
1152 Public Ledger Building, Philadelphia 6, Pa.

Associates: *Philadelphia Quartz Co. of Calif. Berkeley & Los Angeles, Calif., Tacoma, Wash.; National Silicates Limited, Toronto, Canada. Distributors in over 65 cities.*

TRADEMARKS REG. U. S. PAT. OFF.

PQ PLANTS: ANDERSON, IND.; BALTIMORE, MD.; BUFFALO, N.Y.; CHESTER, PA.; JEFFERSONVILLE, IND.; KANSAS CITY, KANS.; RAHWAY, N. J.; ST. LOUIS, MO.; UTICA, ILL.

as the reader sees it . . .

" . . . a great service . . . "
Editor:

I feel that you have done a great service to us, and have encouraged truth in reporting with your editorial in the January issue of *Soap & Chemical Specialties* about our experience with Drew Pearson. You are to be congratulated on editing a magazine that is concerned with accuracy.

Unfortunately, most of us read columnists' articles and take for granted many of the things they say without further inquiry into whether statements they make are true to fact or not. It is very encouraging to me and to my associates that you have taken the time and trouble to bring to light statements made by columnists which have no bearing whatsoever on the current television controversy.

To bring you up to date, we have since received clips from about 20 newspapers which, on their own, have printed the corrections we sent to them. This number is about 10 per cent of the papers that originally carried the column. But, we do feel that this is an indication of the fact that when newspapers, magazines and other media have the facts, they will be fair in reporting news stories.

Jacob L. Barowsky,
President,
Lestoil, Inc.
Holyoke, Mass.

★

The Case for Shellac
Editor:

Our association's attention has been called to an advertisement for Durez Plastics Division, Hooker Chemical Corp., that appears on page 93 of the January, 1960, issue of *Soap & Chemical Specialties*. The advertisement in question was derogatory to shellac and certainly was an example of unnecessarily hard sell directed at a product which has for years been accepted as standard. Frankly, we were surprised to see an advertisement of this type appear in a publication having the stature in the industry that *Soap* enjoys.

The advertisement, in addition to being derogatory, makes certain statements which appear to be of doubtful accuracy and even such statements as may be accurate certainly give false implications. It may be that the weather affects the actual amount of shellac produced, but because of our association's insistence on accurate quality control the quality of the product made available to domestic users is seldom, if ever, affected, except when shellac users desire the product modified for their own purposes. In any event, the quality available can be controlled so precisely by modern manufacturing methods that there should be no disparagement directed at shellac on the basis of quality.

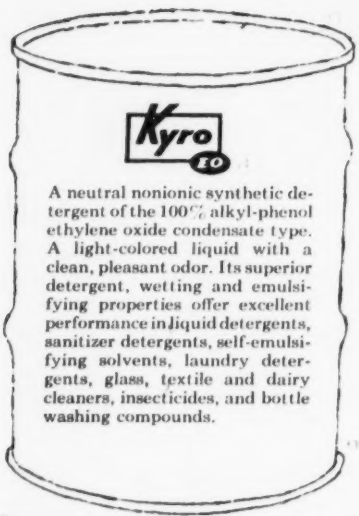
While we must admit that in the past there has been price fluctuation from time to time, the Indian government and the India Lac Exporters Association have reduced fluctuations to a minimum and such changes as have occurred have, for the most part, been averaged out by members of the American Bleached Shellac Manufacturers Assn. As a result, shellac now enjoys a stable price subject, of course, to variations resulting from ordinary sales competition.

We are surprised to see that your advertiser feels justified in making the claims as to the characteristic of its product in comparison with shellac since so many wax manufacturers have felt and con-

(*Turn to Page* 206)

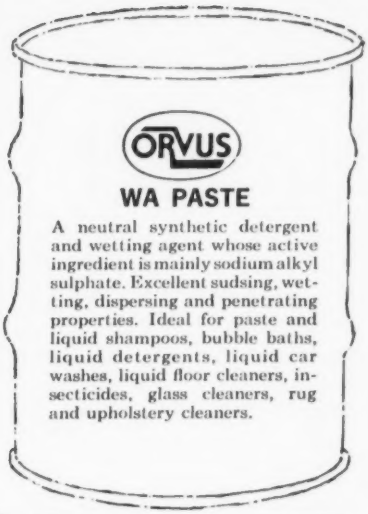
A FAMILIAR FACE: That of Ed Sullivan appeared (in person!) at recent regional sales meeting of the Toilet Articles Division of Colgate-Palmolive Co., New York. A few days later, Mr. Sullivan made a guest appearance at the regional meeting of the Colgate's Household Products Division in Philadelphia. Stars of other Colgate-sponsored TV shows, including Raymond Burr, Bill Hopper and Barbara Hale ("Della Street"), all of the "Perry Mason Show," and Marvin Miller, star of "The Millionaire," appeared at Colgate divisional regional meetings in various other cities throughout the United States.

THERE'S A PROCTER & GAMBLE PRODUCT FOR EVERY FORMULATION NEED



Kyro EO

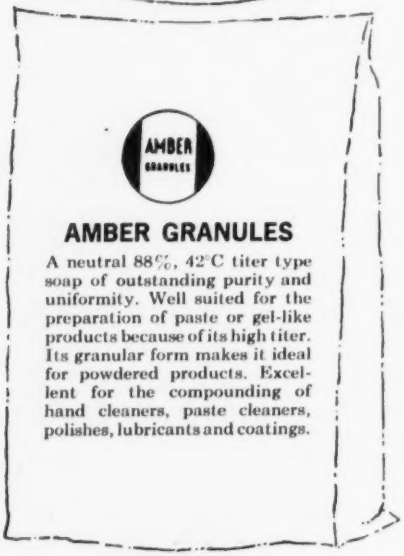
A neutral nonionic synthetic detergent of the 100% alkyl-phenol ethylene oxide condensate type. A light-colored liquid with a clean, pleasant odor. Its superior detergent, wetting and emulsifying properties offer excellent performance in liquid detergents, sanitizer detergents, self-emulsifying solvents, laundry detergents, glass, textile and dairy cleaners, insecticides, and bottle washing compounds.



ORVUS

WA PASTE

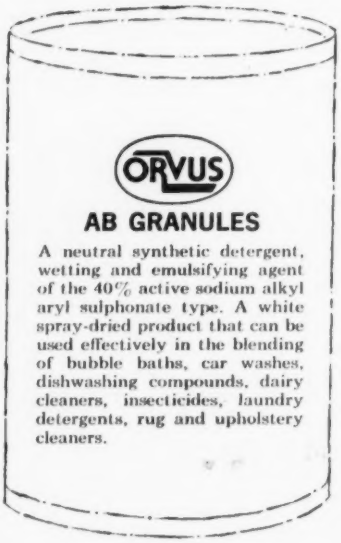
A neutral synthetic detergent and wetting agent whose active ingredient is mainly sodium alkyl sulphate. Excellent sudsing, wetting, dispersing and penetrating properties. Ideal for paste and liquid shampoos, bubble baths, liquid detergents, liquid car washes, liquid floor cleaners, insecticides, glass cleaners, rug and upholstery cleaners.



AMBER GRANULES

AMBER GRANULES

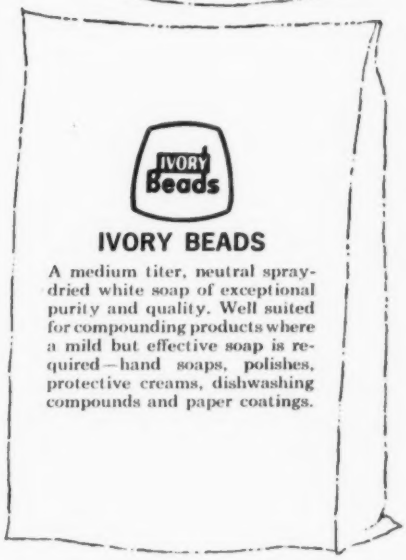
A neutral 88%, 42°C titer type soap of outstanding purity and uniformity. Well suited for the preparation of paste or gel-like products because of its high titer. Its granular form makes it ideal for powdered products. Excellent for the compounding of hand cleaners, paste cleaners, polishes, lubricants and coatings.



ORVUS

AB GRANULES

A neutral synthetic detergent, wetting and emulsifying agent of the 40% active sodium alkyl aryl sulphonate type. A white spray-dried product that can be used effectively in the blending of bubble baths, car washes, dishwashing compounds, dairy cleaners, insecticides, laundry detergents, rug and upholstery cleaners.



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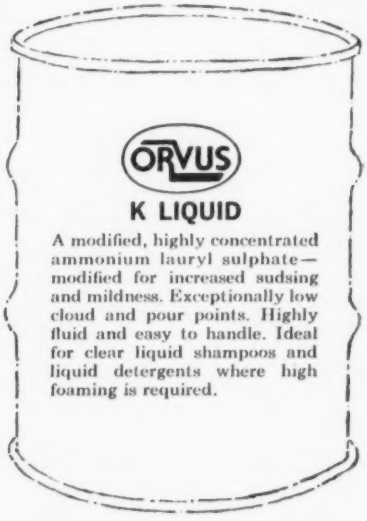

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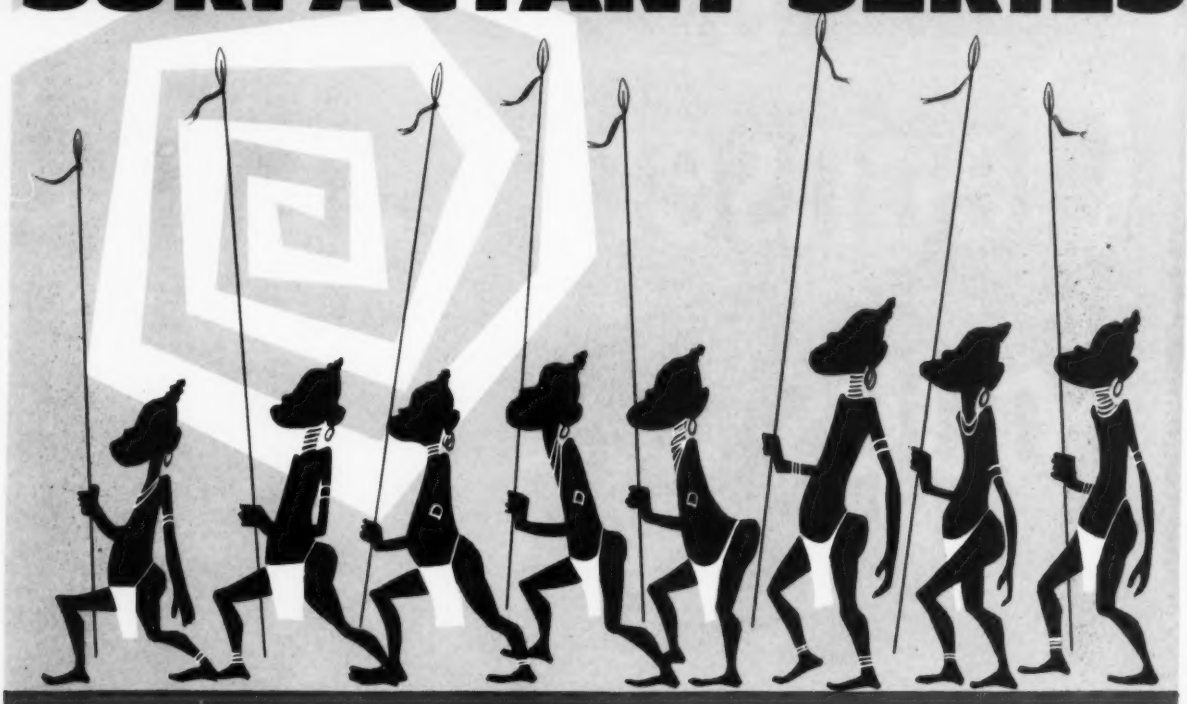

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HOUSEHOLD CLEANSERS

What are appropriate criteria to be used in evaluating new products?

By David Justice*
Lever Brothers Co.
New York

THIS study deals with the development and application of new household cleaning products — what are appropriate criteria to be used in evaluating the new products, and what testing methods are valid in determining whether the product meets use requirements? These questions pertain to the cleaning efficiency of the product, including removal of obvious soil from a surface and controlling the invisible contamination of microorganisms. They must also be answered with respect to the mildness of the product, including mildness in use and possible toxic effects of accidental ingestion. In addition to efficiency and mildness, there are many other factors which influence consumer satisfaction with a product. These include economy, packaging, odor and color for example.

Our emphasis will be on cleanliness in the kitchen. Primarily, this is a problem of hard surface cleaning and we shall not be concerned with the washing of clothes, rugs, or other "soft" articles: The literature in the field of sanitizers, hard surface cleaners, and dishwashing agents is much more extensive for industrial applications than for domestic. Some of the results obtained in field studies of restaurants and hospitals are useful in developing a product for home use, but account must be taken of the special conditions which exist in the home. From the viewpoint of the chemical specialties industry, the improvement of cleaning methods in the home centers around the development of new cleaning agents of many types

*Paper presented at the 46th annual meeting of the Chemical Specialties Manufacturers Association, Washington, D. C., Dec. 8, 1959.

Dr. Justice is assistant director in charge of the chemical and physical department, research and development center of Lever Brothers Company in Edgewater, New Jersey.

—liquids, granulated powders, and abrasive powders for example. We shall restrict ourselves to principles of development of better cleaning agents which will generally be applicable, regardless of product type.

Valid laboratory testing procedure for evaluating new experimental products, as well as home-use testing techniques, are an important key to new product development. These tests must be realistic and show what actually happens when the product is used in the home. Since conditions vary so much from home to home, however, controlled laboratory tests are satisfactory only for screening but not for complete evaluation of product performance. In addition to screening tests, practical use tests in the laboratory utilizing natural soils and surfaces may be conducted. Unfortunately, these do not predict with certainty performance in the home because soiling conditions are different in different parts of the country, and even in one location will vary with the season of the year. Therefore, promising products must also be evaluated by means of consumer surveys or limited market testing before marketing decisions are made. Surveys are complicated by the fact that the average housewife is not a trained scientific observer. She often bases her judgement of an experimental product on some factor which is irrelevant to the test being conducted. The housewife is perfectly capable of comparing two products which are identical in every way except perfume, and ascribing to them differences in foaming, detergency, and mildness. Obviously, any consumer test must be carefully planned, and should be used only after careful initial screening in the laboratory.

What laboratory tests should we then use for initial screening and for laboratory evaluation before sending a product out for a consumer survey or a market test? Certainly a single test will not suffice. In testing a product which is expected to remove many different soils from many different substrates, under many different conditions of application, we cannot settle on a single surface, a typical soil, and average application procedures. In laboratory use tests we must remember the fact that the substrate, the soil, and the conditions of use vary widely and are completely uncontrolled. We must design studies statistically in order to extract useful information from them. This is not to say that laboratory studies should not be statistically designed — they should be. But the statistics are different — and designed to apply to the special conditions in which they are used. In consumer tests we must attempt to measure the dependent variables (the color, package, etc.) and use a large enough sample to average out the uncontrolled variables (type of home, its location, the number and ages of children, the season, the water hardness, etc.). In laboratory evaluation the statistical procedures are quite different. We can carefully control the independent variables (soil, surface, temperature, water hardness, degree of agitation or abrasion, time, etc.); we can measure the dependent variables (reflectance, percent soil removed by chemical analysis, visual appearance as graded by a panel of experts, etc.). The statistical problem here is the fairly straightforward one of estimating the standard deviation of the test results when the experimental conditions are controlled within certain limits.

Substrates

We thus return to the basic problem of screening tests. What conditions should we establish for the independent variables? We cannot choose a hundred types of surfaces just because there are hundreds of different types of surfaces to be cleaned. We cannot develop a hundred different soils just because natural soils vary in a hundred ways. The essence of scientific research (this applies also to industrial research which is not always scientific) is to reduce the problem to its essential features. Let us consider first the surface to be cleaned. Instead of trying to duplicate in the laboratory all the myriad surfaces used in home construction, we can select a few categories which are alike in their essential features. The following categories are representative of most of those encountered in the home: 1. Dishes and glasses. 2. Plastic surfaces, including linoleum, plastic tile and many types of counter-tops. 3. Painted surfaces, such as walls and cupboards. 4. Metallic surfaces. Other classifications of surface types might be equally useful.

Choice of Test Soils

The choice of a small number of categories of soil types is more difficult. For example, we cannot choose a single fat as representative of those found on dirty dishes, since natural animal fats vary widely in melting point, and even good emulsifying agents do not perform well below the melting point of the fat. With regard to proteinaceous soils of the type found in eggs and milk, the development of a standard soil is further complicated by the fact that the method of application has a great effect. Fresh soils of this type can often be rinsed off easily, but after they have dried, it is difficult to remove them without abrasion. This also applies to such foods as chopped spinach and breakfast cereals. The method of application of the soil is also important in the case of floor tile. Fine carbonaceous soils can be very difficult to remove if ground into the surface, but easily removed if merely dispersed in oil and spread on the tile. Taking these factors into account, a limited number of standard soils must be chosen for screening purposes.

These standard soils must obviously have a fat component to represent the film of greasy soil that coats surfaces in the home, arising from an airborne transmission of oil droplets from the

cooking area. They should contain carbon black or finely divided siliceous material to represent the dust that settles in the oily film. Although the standard soil is designed to represent a natural soil, which is quite variable, the standard soil should be carefully controlled to be reproducible. Specifications should be established for each component and for the mixing procedure. For soils to be used on dishes, the problem is conveniently solved by using commercial foodstuffs, which are usually sufficiently uniform in properties. In this case careful control of the application procedures, such as time and temperature of drying, is needed.

The next problem encountered is giving a numerical value to the results. In washing fabrics, the reflectance before and after can be measured. This cannot easily be done, for example, in washing dishes. In these cases, the results can be estimated by a panel of judges. Each judge ranks the experimental products in order of increasing effectiveness, and an average rank is calculated for each product. It is obvious that if product A is rated best by all the judges it is clearly superior. If A and B each receive one-half the votes for first and second place, they are equivalent. Standard rank order tables are available to determine whether products are different from each other, at any desired level of statistical significance.

The tests we have been discussing so far are all designed to assess the efficiency of products in removing visible soil. This is the kind of product performance most obvious to the housewife, and most important to her in judging various products. These tests are therefore the most important to the manufacturer in his product development work. However, there has been a trend recently to formulate cleaning products for the home which destroy, or at least suppress the growth of micro-organisms of many kinds. It is impossible for the housewife to judge the relative performance of different products in this respect. Product effectiveness can only be evaluated under controlled laboratory conditions.

In Washability Laboratory of Lever research center in Edgewater, N.J., dishes are soiled, washed, re-soiled and re-washed in never ending process for measuring efficiency of soaps and detergents in leaving dishes sparkling clean.

Micro-Organisms

There are two broad groups of micro-organisms that must be considered: molds and yeasts constitute one group, and bacteria the other. Typical of the molds are the various strains of *Aspergillus, Penicilium,* and *Rhizopus.* Yeasts include such organisms as *saccharomyces* and *monilia.* These micro-organisms are ubiquitous. One can expose a sterile agar plate to the atmosphere for only five minutes, cover and incubate the plate, and many colonies will be visible. Some of these micro-organisms are commercially valuable in fermentation processes for example, but others are undesirable because they cause rotting of wood, leather, textiles and paper. Many cause spoilage of food. Molds will grow on practically anything. They require only moisture, a trace of mineral salts, and a source of carbon. Yeasts are somewhat more fastidious, and require vitamins, such as B_1. It is fortunate in view of the universal presence of these materials, that they are easily destroyed by heat. Temperatures of 60°C will destroy the vegetative forms and boiling water will destroy spores. The most important point at which contamination of foods by molds and yeasts must be prevented is in the factory of the food manufacturer, to avoid spoilage of the product during distribution. Once the food is brought into the home, there is a possibility of contamination. The problem is not a serious one, however. We have all had experiences in our own homes of mold growth on a jar of jelly which has been left open, or on a loaf of bread. But these occurrences are rare and do not constitute a serious health hazard in any case. The question we have to answer is whether, by proper sanitation procedures, even this minor nuisance can be controlled. It seems impossible to completely eliminate these airborne organisms from the home by any reasonable sanitation procedures. Since they do not constitute a serious problem anyway, control of molds and yeasts is not considered to be an important function of household cleaning agents.

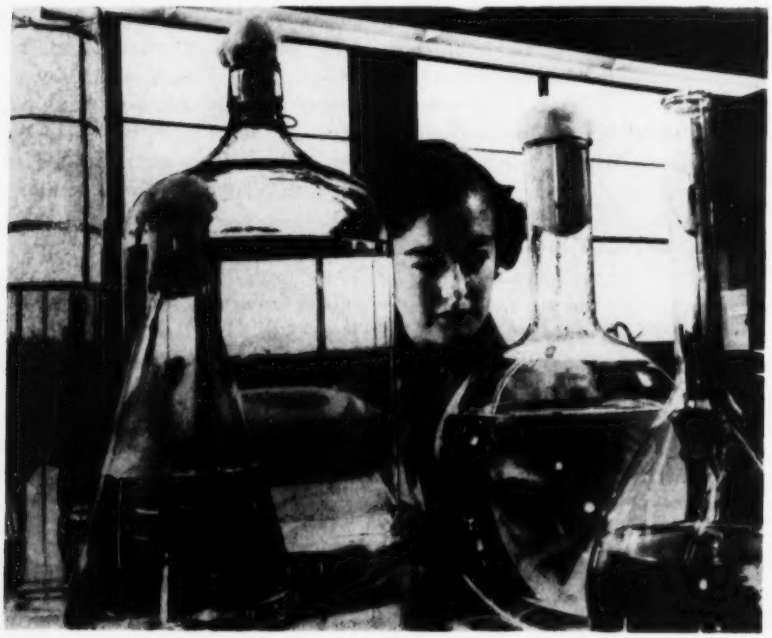
Bacteria comprise a more important class of micro-organisms;

they are responsible for numerous diseases and for food poisoning. Many bacteria are relatively harmless under ordinary conditions. *Klebsiella aerogenes* and *Bacillus subtilis* are airborne organisms which are almost universally present but do not ordinarily constitute a serious health problem. *Escherichia coli* is universally present in the human intestinal tract and causes no harm. Its presence in drinking water, however, is an indication of faecal pollution and generally regarded as a danger signal that pathogenic bacteria may also be present. *Staphylococcus aureus* is an example of pathogenic bacteria currently causing serious concern. The problem has been magnified by the fact that several strains have developed which are resistant to antibiotics, (Kent, Giorgio, Cincinnati, 80-81). Stubborn, deep-seated local infections are often caused by *Staphylococcus*. There has been at least one case of an epidemic of staph infections in the nursery of a hospital which resulted in several deaths. Many hospitals now have committees of doctors responsible for developing means of controlling this problem.

In addition to this pathogenic potential, *Staphylococcus* is often involved in food poisoning. In food which is contaminated with *Stapyhlococcus* and kept warm for some hours, staph will grow vigorously, producing as it grows a poison, called an exotoxin, which will cause serious gastro-intestinal upset. Reports occasionally appear in the news about picnics at which several hundred people become violently ill from eating potato salad that has not been kept under refrigeration. These incidents are often caused by *Staphylococcus*. The contamination of the food has usually been caused by one of the food-handlers, since this organism is transmitted by direct or indirect human contacts. An organism that causes a more serious form of food poisoning is *Clostridium botulinum*. This organism grows anaerobically and produces botulin, a deadly biological poison. *C. botulinum* is soil borne and is not ordinarily present in the home, but may be be brought in on raw vegetables. The most common cases of botulism occur with home canned foods such as corn, beets, beans and asparagus, which have been inadequately sterilized after canning. Cases of botulism caused by commercial food products are virtually unknown in the United States.

Two other organisms which are occasionally involved in food poisoning are *Streptococcus* and *Salmonella*. In contrast to *Staphylococcus* and *Clostridium*, these bacteria do not produce an exotoxin when they grow in food, but multiply in the intestine and release an enterotoxin which causes severe intestinal upset. Thus the symptoms of this type of food poisoning may not occur for twenty-four or even forty-eight hours after the food is eaten. *Salmonella* is not airborne, since it is destroyed by desiccation, but both *Salmonella* and *Streptococcus* are transmitted by direct and indirect human contact.

Biological laboratory of Lever research center in Edgewater, N. J., where role of modern cleaning agents in controlling undesirable micro-organisms is studied.



Microbial Control

Without discussing further the role of bacteria in disease, but using the characteristics of these four organisms as illustrative, we shall try to analyze the role of modern cleaning agents in controlling undesirable micro-organisms. Before discussing the home environment, we should review briefly the situation in restaurants, and the methods applicable there. Harwood and Pesare reported in 1942 on a study of restaurants in Providence. They found 500 to 76,000,000 organisms on tumblers in restaurants with a mean of 200,000. Similar high counts were found on tumblers at soda fountains and on beer glasses. In public eating places the problem of contamination of dishes and eating utensils is a serious one, since pathogenic organisms can be transmitted from a single carrier to many other people in the course of a day. Many satisfactory solutions to this problem have been developed. Mechanical dishwashers which operate at sufficiently high temperatures, usually above 170°F, are quite effective.

Some solutions of antibacterial agents can be used to rinse dishes, after they are thoroughly

(*Turn to Page* 93)

Unique Soap Bacteriostat

By W. J. Lennon*, T. E. Furia, and H. W. Zussman

Geigy Industrial Chemicals
Division of Geigy Chemical Corp.
Ardsley, N. Y.

THE recent introduction of bacteriostatic laundry detergents and the success of deodorant toilet soaps have focused attention on microbiological control as an important aspect of detergent function. Actually, the consumer of fifty years ago was already familiar with the bactericidal benefits of boiling and chlorine bleach and even deodorant soap was not unknown.

Microbiological control adapted to the requirements of mid-twentieth century mass markets, however, had to wait on the development of satisfactory chemicals, safe for general consumer use, convenient to apply and worth using. The detergent manufacturer now has available a considerable group of products to choose from, including phenolics (chloroxylenol, phenyl phenol, pentachlorophenol, hexachlorophene, bithionol), organic tin and mercury compounds, halogenated carbanilides and salicylanilides, antibiotics, quaternary ammonium compounds, iodophors, tetramethylthiuramdisulfide, etc.

No single product is completely satisfactory for all applications which may include skin degerming, fabric treatment, dish washing, hard surface cleaning, hospital infection control. Some products are too toxic for consumer products of any type while others are not suitable for personal use. Some are too selective in their antimicrobial effects; others lose their activity under reasonably common circumstances; some discolor or stain; some are difficult to formulate. Offering many important advantages over previously described bacteriostatic agents, if still short of the ideal compound, is 3,5,3',4' tetrachlorosalicylanilide (Figure 1), patented in the United States by J. R. Geigy S. A. in 1955 (1) and available commercially as "IRGASAN BS 200." During the past two years, this compound has been used in several consumer and industrial detergent preparations here and abroad. This paper describes in some detail the evaluation of tetrachlorosalicylanilide (TCSA) in Geigy laboratories in this country and in Switzerland.

Table 1. Solubility of 3, 5, 3', 4' —Tetrachlorosalicylanilide in Various Solvents

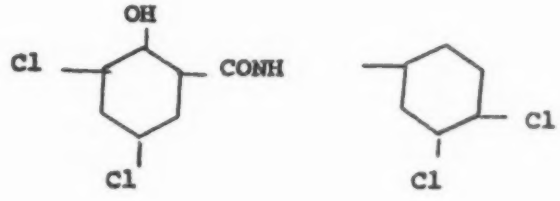
	gms/100 gms solvent (25°C)
Isopropanol	1.5
Ethanol 95%	3.1
Propyleneglycol	0.4
Glycerine	0.1
Acetone	22
Benzene	1.1
Carbon tetrachloride	0.07
Mineral Oil	< 0.01
Oleic Acid	0.3
Olive Oil	0.5
Benzyl benzoate	1.8
Dibutyl phthalate	13.0
Dimethyl formamide	15.0
Dipropyleneglycol	28
Ethyleneglycol	1.5
Tetraethyleneglycol	30
Nonaethyleneglycol	61
Cellosolve	55
Dimethyl carbitol	70
Diethyl carbitol	85
Triethanolamine	15

Description

TCSA is a white, crystalline, non hygroscopic, odorless and tasteless powder, melting at 161-163°C. The commercial product is of good purity, containing not less than 95% tetrachlor and not more than 5% trichlorosalicylanilide.

Figure 1

3,5,3',4' - tetrachlorosalicylanilide



*Based on paper presented at 46th annual meeting, Chemical Specialties Manufacturers Ass'n, Washington, D. C., Dec. 9, 1959.

TCSA is sparingly soluble in water; the weakly acidic character (pK_a 6.6) of the phenolic group accounts for the compound's ready solubility in alkaline solution. Solubility in soaps and detergents is considerably better than for trichlorocarbanilide but somewhat less than for hexachlorophene. One half percent TCSA may be incorporated in 20% aqueous solutions of soaps or unbuilt detergents; triethanolamine is usually satisfactory as a solubilizing agent in difficult liquid formulations. A number of excellent solvents for TCSA are listed in the solubility chart (Table 1):

TCSA has a characteristic ultraviolet absorption spectrum with peak absorption at 360 $m\mu$ in ammoniacal methanol (Figure 2); in acidic methanol, absorption shifts further into the ultraviolet region. Particularly noteworthy is the fluorescence exhibited by TCSA when excited with ultraviolet light: bluish for the ionized compound and yellow for the non-ionized form, in solution or in the solid state.

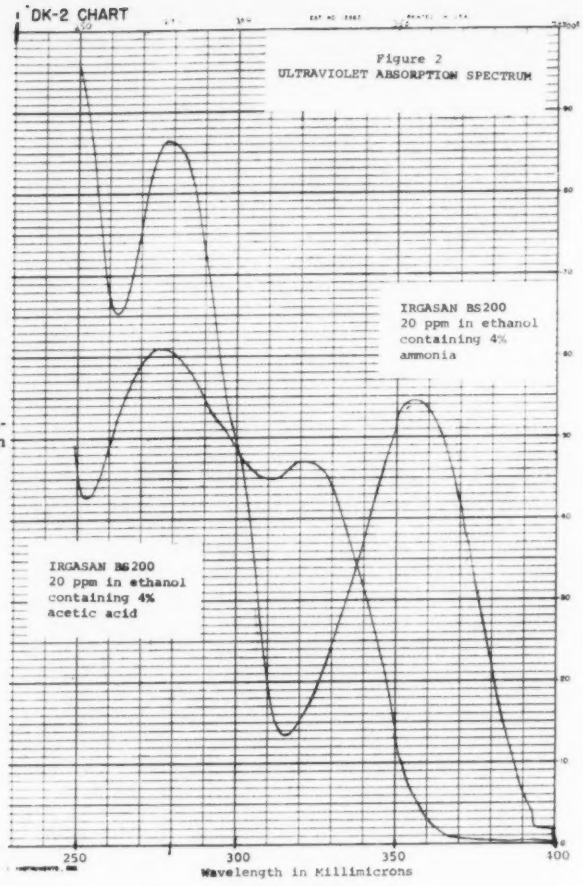


Figure 2: Ultra-violet absorption spectrum.

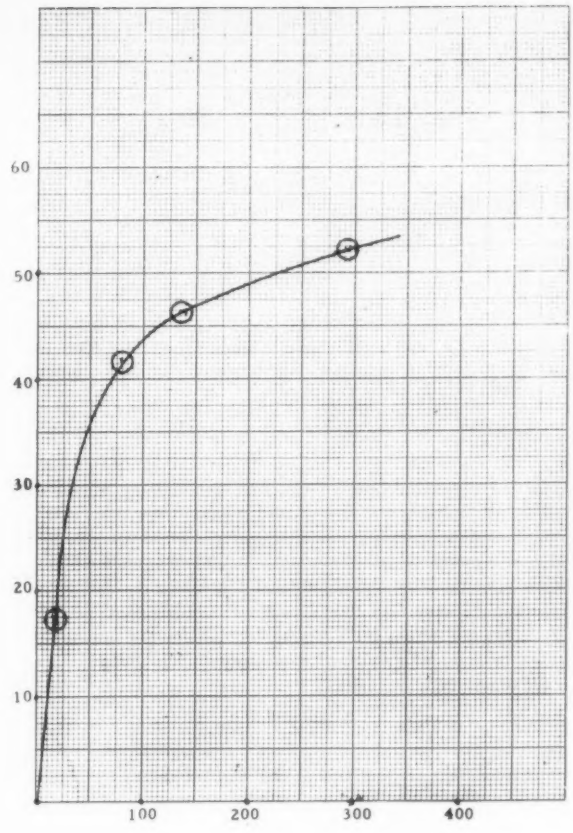
TCSA is chemically stable under most conditions normally encountered in the formulation, storage and use of detergent products. The compound is not readily dehalogenated and the amide linkage is quite resistant to hydrolysis. No color, odor development or loss of biological activity has occurred in a 0.2% TCSA solution in 35% potassium soap at pH 10 stored at ambient temperature for one year. Wrapped soap bars containing TCSA show less discoloration in long storage than do identical bars containing bisphenols. No breakdown occurs during spray drying of TCSA in highly alkaline built detergents. Less than one percent hydrolysis occurs on heating TCSA for three hours at 98°C in distilled water, 0.1 N hydrochloric acid, or 0.1 N sodium carbonate.

Although TCSA is stable to perborate (it may be boiled in 0.1 N sodium perborate without significant change) and persulfate, it is readily oxidized in solution by hypochlorite. Nevertheless, the compound is quite stable to chlorine once adsorbed on fabric. Permanganate will not attack the compound adsorbed on the skin.

Solutions of TCSA are not stable to sunlight (or ultraviolet light) and are best handled in actinic glassware or otherwise protected. Photodecomposition in aqueous alkaline solution is oxygen catalyzed and may be inhibited by excluding oxygen, by using antioxidants or oxygen scavengers. Light stability of TCSA solutions improves with decreasing pH. Adsorbed films of TCSA vary in stability and will be referred to in more detail below. It might be noted that tetrachlorosalicylanilide itself has good light stability as do formulations in many plastics.

The compound is readily assayed by ultraviolet absorption or fluorometric techniques. Black light inspection is particularly convenient for tracing TCSA and may also be used for demonstrating its presence on fabrics or on the skin. A chemical method is based on hydrolysis of TCSA in 2 N KOH, steam distillation of dichloroaniline and coupling of this compound with benzoyl H acid to form a red dye; optical density is measured at 510 $m\mu$ or comparison may be made with a series of standards. (This method is also suitable for trichlorosalicylanilide, tribromosalicylanilide and trichlorocarbanilide.) This procedure may be used directly on cotton fabric or may be combined with solvent extraction for nylon. In Figure 3, fluorescence readings (Lumetron) on ammonia treated cotton (to assure pure bluish fluorescence) are plotted against TCSA concentration as determined by benzoyl H acid method.

TCSA compares favorably with other phenolic bacteriostats with regard to toxicity. The LD50 for TCSA administered orally to



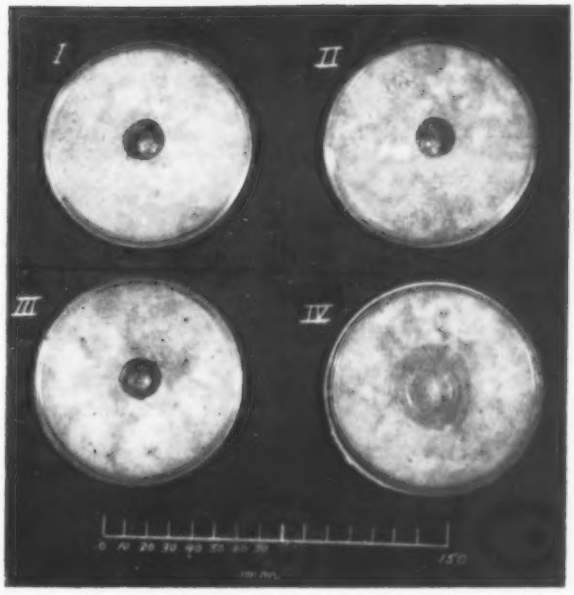


Figure 4. Zone of inhibition against Pityrosporum ovale in 10% serum agar: I—control, II—250 ppm hexachlorophene, III—250 ppm bithionol, IV—250 ppm TCSA.

Figure 3, at left, plots fluorescence readings (vertical figures) against concentration of "Irgasan BS200" on fabric (in ppm).

Table 2. Fungistatic Effectiveness of TCSA

Minimum Concentration in ppm Causing Complete Inhibition of Growth after 72 hours Incubation at 28°C in Wort-Agar

Organisms	TCSA	Pentachlorophenol
Aspergillus niger EMPA	> 1000	10
Penicillium expansum	10	10
Fusarium oxysporum	10	10
Candida albicans	30	10
Monilia nigra	10	30
Saccharomyces cerevisia	10	30
Torula utilis	30	10
Aspergillus flavus	> 1000	30
Aspergillus fischeri	3	10
Aspergillus clavatus	100	30
Aspergillus luchuensis	> 1000	10
Aspergillus oryzae	3	10
Trichoderma viride	3	3
Culvularia lunata	3	3
Stemphylium botryosum	3	3
Stachypotrys atra	3	3
Ctenomyces spec. (C.B.S.)	3	3
Trichophyton gypseum	10	10
Chastomium globosum	3	3
Penicillium citrinum	3	3
Penicillium chrysogenum	3	3
Penicillium fuscoglaucum	30	3
Penicillium solitum	3	3
Rhizopus nigricans	3	3
Acrostalagmus cinavarinus	10	3
Scopulariousis brevis	3	3

rats is 213 mgms./kilo; for hexachlorophene, the LD50 is 175 mgms./kilo. Both compounds produce slight irritation of rabbits' eyes when instilled into the conjunctival sac as 0.1% solutions in 10% "Ivory soap" without rinsing; the irritation clears in each case within three days. No irritation is noted if flushing immediately follows instillation. Daily inunction of shaved intact rabbit skin for ninety days and shaved abraded skin for twenty-eight days with two percent TCSA in dimethylphthalate produced less irritation than one percent hexachlorophene.

Repeated insult patch tests and clinical studies have involved more than three hundred fifty human subjects, including a great number with skin ailments. Solutions patch tested included TCSA in alcohol, in household laundry detergents, toilet soap and synthetic bar formulations. In all tests where hexachlorophene was used as a standard, comparable results

Table 3.
Effective Zone of Inhibition in mm. in 10% Serum Agar Seeded with Pityrosporum ovale

	1000 ppm	500 ppm	250 ppm	100 ppm
TCSA	20	11	8	0
Hexachlorophene	7	4	0	0
Bithionol	8	4	0	0
Control*	0	0	0	0

*95% ethanol alone

Table 4. Minimum bacteriostatic concentration (48 hrs. in nutrient broth at 37°C): parts per million

	TCSA	Bithionol	Hexachlorophene
Proteus vulgaris (8427)	10	100	1000
Proteus vulgaris (9920)	10	10	10
Sarcina lutea (9341)	0.1	1	0.1
Sarinca flava (540)	0.1	1	0.1
Staphylococcus aureus (100055)	0.1	0.1	0.1
Pseudomonas pyocyanea (10145)	100	> 1000	1000
Escherichia coli (4157)	100	> 1000	> 1000
Salmonella typhosa (10243)	100	1000	> 1000
Bacillus subtilis (6633)	10	10	> 1000
Klebsiella pneumonia (10031)	> 1000	> 1000	> 1000
Serratia marcessens (9986)	1000	> 1000	> 1000

( ) American Type Culture Collection Number

Table 5.
Concentration (ppm) causing complete kill of Staphylococcus aureus after ten minutes exposure, followed by transfer to and incubation on glucose bouillon agar.

	As is	10% Soap	10% Serum
Tetrachlorosalicylanilide	125	250	250
Bithionol	800	> 1000	800
Hexachlorophene	125	250	250
Trichlorocarbanilide	200	400	400

were obtained with TCSA. Based on this extensive testing, it is felt that 0.5% TCSA in soap or synthetic toilet bars is a maximum acceptably safe yet highly effective level and no more irritant or potentially sensitizing than comparably effective concentrations of bisphenols. Practical experience with TCSA at 0.1-0.5% in a number of commercial soap and detergent formulations during the past two years generally confirms test findings.

Microbiological Activity

Unlike many other bacteriostats, TCSA exhibits relatively broad spectrum activity against fungi, gram-positive and gram-negative bacteria. In Table 2, the fungistatic activity of TCSA is compared with pentachlorophenol.

TCSA is also active "in vitro" against *Pityrosporum ovale*, a pathogenic fungus usually associated with dandruff. Table 3 compares the results obtained with TCSA, hexachlorophene and bithionol in 95% ethanol.

Trichophyton interdigitale, a yeast like fungus frequently associated with athlete's foot, is also inhibited by TCSA. In the Serum Agar Cup test, TCSA produces a substantial zone of inhibition against this organism at 100 ppm. Bithionol in the same test produces a zone of inhibition at 1000 ppm but not at 100 ppm. In Table 4, the bacteriostatic activity of TCSA and two bisphenols are compared, using the use dilution technique. TCSA is also effective against many antibiotic resistant *Staph. aureus* strains. Table 5 compares the effect of serum and of soap on the 'in vitro' bactericidal properties of TCSA, trichlorocarbanilide and two bisphenols.

Deodorant Soaps

Deodorant toilet soaps are securing an increasing share of the total soap market and the emergence of antibiotic resistant bacteria has re-emphasized the importance of skin degerming in hospitals and elsewhere. Consumer demand for anti-dandruff shampoos and medicated soaps is also growing rapidly. TCSA is promising in all of these applications.

In general, an addition of 0.5% TCSA based on active detergent ingredient is adequate. Analysis of combined wash and rinse solutions following controlled two minute lathering of the hands with two grams soap containing 10 mgms. (0.5%) TCSA indicate that 10-20% TCSA is adsorbed and retained on the skin. Although there is considerable variation from individual to individual, good reproducibility is obtained with individual subjects. Black light inspection may be used to demonstrate the compound's good light stability on the skin and its resistance to removal by soaping, solvent washing, oxidizing agents. The black light technique should also be useful in hospitals for checking protection. It should also prove particularly valuable as a visual demonstration for commercial exploitation and promotion.

Price-Cade hand wash tests (2) with stearic coconut (80/20) soap bars indicate that TCSA is considerably more effective than hexachlorophene in reducing skin bacteria count over a twelve day period of continuous use (Figure 5). One half percent TCSA in this particular soap formulation is as effective as 1.5% hexachlorophene. Figure 6 compares the rate of skin degerming with soap containing one percent TCSA and soaps containing up to two percent hexachlorophene. While the bisphenols generally show a reduction in skin degerming activity when formu-

(*Turn to Page* 93)

Low Foam Nonionic Surfactants

By J. Dupre, R. E. Wolfrom and D. B. Fordyce*,
Research Laboratories, Rohm & Haas Co., Bristol, Pa.

Part II

A SECOND major field where low foam surfactants have proven useful is spray metal cleaning. This method of cleaning metal has become very popular in recent years. Here violent agitation is involved at temperatures ranging from room temperature up to 80 or 90°C. Foam was evaluated with a recirculating pump apparatus and also with our milk shake test. Data in Table VI show that all modified nonionics exhibit good detergency in removing mineral oil from steel and are low foamers at high temperature. For cold spray cleaning, only A and C maintain their very low foam properties down to 25°C.

The modified nonionics can be used in mixture with high foam surfactants where they reduce foaming. Blends of 3 parts of OPE_{10} and 1 part of Surfactant B in an alkaline base have been found useful in the field in hot spray cleaning. Similarly a blend of A and a higher foaming product in an alkaline base has given acceptable performance in a low temperature spray operation.

Hard Surface Wetting: The displacement of air from hard surfaces by an aqueous system is involved in a number of applications. The data in Table VII illustrate the effectiveness of the modified nonionics in wetting a hydrophobic surface. At equal concentrations, they give significantly lower contact angles and thus better wetting than does sodium dodecyl benzene sulfonate and are essentially equal to the conventional nonionic, OPE_{10}.

Table VI. Metal Cleaning Data

Surfactant	Relative Foam 25°C.	Relative Foam 82°C.	Cleaning Efficiency[1] at 82°C.
A	low	low	91
B	med.	low	76
C	low	low	76
D	med.	low	85
OPE_{10}	high	med.	99
DDBS	high	high	39

(1) Mild steel panels soiled with heavy mineral oil were soak cleaned with 0.1% surfactant and 5% alkaline builders.

The combination of good wetting and low foam at room temperature shown by A makes it particularly well suited for use in agricultural field sprays to improve the wetting of foliage and for improving the wetting of metal substrates by aqueous coating compositions.

The greater effectiveness of the nonionics in wetting non polar surfaces is primarily a result of their being more effective in lowering the surface tension of water than typical anionics. It should be noted that none of these materials can completely wet the paraffin, which would correspond to a contact angle of zero or less. Paraffin is a very low energy surface and surface tension would have to be lowered to approximately 22 dynes/cm. to achieve complete wetting. No ordinary hydrocarbon surfactant can reduce the surface tension of water to this low value.

The application of quaternary salts as bactericidal and fungicidal agents is rapidly expanding. Their utility on the dairy farm, in food processing, and institutional cleaning is well established in detergent-sanitizer formulations containing conventional nonionics. However, in many situations such as pipe line cleaning the presence of foam is not desirable. It is in these applications that the modified products are especially valuable.

Quaternaries alone at use concentrations of 200 ppm are poor detergents and poor wetters for polar surfaces like glass and metal. Chemisorption of the quaternary on the negative centers on these surfaces lowers the surface energy of these solids and thus makes them more difficult to wet. For example, water alone will wet clean glass to give a contact angle against air on glass of zero or less, whereas 200 ppm of a quaternary will give a contact angle of 46°. The addition of 200 ppm of a conventional nonionic like $OPE_{7.5}$ or OPE_{10} to the quaternary solution will reduce the contact angle to 20-25° and thus give more effective wetting and detergency. The modified nonionics A, B and D will also give the same low contact angles with

Table VII. Contact Angles versus Air on Paraffin (25°C.)

Surfactant (wt. %)	Surfactant Concentration .001	.01	.10	1.0
A	84	59	51	51
B	84	55	54	50
D	59	51	50	50
OPE_{10}	86	64	49	48
DDBS	102	85	60	53

*Paper presented by Mr. Dupre during second annual meeting, Canadian Manufacturers of Chemical Specialties Association, Toronto, Nov. 3, 1959.

the quaternary without adding to foam production.

The effect of these modified nonionics on the bactericidal activity of the quaternary will have to be determined in any formulation since, like conventional nonionics, it will vary depending on pH and the particular quaternary. Products A and D have already found use in detergent-sanitizers for in-place cleaning and egg washing because of their reduced foaming tendencies, acceptable detergency and compatibility with quaternaries.

Textile Applications

The modified nonionics are useful in a number of textile processing operations where low foam is desirable. Surfactant D was developed as a low foam penetrant and has found wide use for this purpose.

Foam data in Table VIII illustrate the previously stated fact that the modified nonionics will give low foam only at temperatures above their cloud point. In the Hamilton Beach test, foam heights of less than 5-6 cm. are considered low. The Draves wetting data show that the textile wetting efficiency of these modified nonionics is also temperature dependent and they become somewhat less effective above their cloud points. If we consider 0.10% or less for 25 second wetting as satisfactory, then these materials will give acceptable wetting for approximately a 10°C. range above their cloud points. Surfactant A would then have low foam and good wetting in the range of 20 to 30°C. If low foam and good wetting at a higher temperature are desired, then Surfactants B and D would be indicated.

Surfactant A should be useful in low temperature coating and sizing operations. Surfactants B and D are indicated for certain dyeing, desizing and boil-off operations.

Textile detergency data in Table IX show that Surfactant D is useful in operations where low foam and textile detergency are desired. It is somewhat better than the widely used OPE_{10}. A, B and C are found to be just fair textile detergents.

Table VIII. Wetting and Foam vs Temperature

	Cloud Point	Hamilton Beach Foam(cm)				Draves Wetting (Conc. for 25 sec)				
	1%, °C.	20°C.	25°C.	30°C.	50°C.	20°C.	25°C.	30°C.	40°C.	50°C.
A	19	5.0	3.0	0.6	0	.05	.07	.10	.15	.20
B	22	12.0	7.6	5.3	2.8	.07	.07	.07	.11	.12
C	25	—	5.8	—	1.0	—	.27	—	—	—
D	40	>14.0	>14.0	>14.0	3.5	.05	.04	.04	.05	.09
OPE_{10}	66	>14.0	>14.0	>14.0	>14.0	.05	.05	.05	.04	.04

Examination of the emulsifying ability of these materials (Table X) showed Surfactant B to be a good emulsifier for a number of solvents which suggest its utility in solvent scouring and fiber oiling operations.

Table IX. Textile Detergency

Surfactant[1]	Tergotometer[2], 49°C., 15 min.						
	Cotton[3]		Wool		Nylon	Acetate	Over-all Rating
	oily	dry	oily	dry	oily	oily	
A	45	22	—	—	88	—	Fair
B	53	40	72	51	80	44	Fair
C	54	35	65	43	80	52	Fair
D	58	42	80	70	88	68	Good
OPE_{10}	48	41	74	68	84	66	Good

(1) 0.1% surfactant plus 0.1% TSPP.
(2) Data are % return of soil cloths to original whiteness.
(3) Oily soil cloths are Testfabrics; dry cotton is U. S. Testing, while dry wool is F. D. Snell.

Miscellaneous Uses

The low foam properties in combination with good wetting and detergency and defoaming characteristics suggest these modified nonionics would be useful in numerous areas. These could include defoaming boiler feed water, defoamer in enzyme production, use in paper production, and various specialty cleaning formulas.

Conclusions

Conventional nonionic surfactants produce excessive foam in some mechanical operations involving high agitation. However, chemical modification of these nonionics by the incorporation of a second hydrophobic group into the molecule can markedly lower foam while still maintaining useful surface activity. Four modified nonionics have ben described and charized by surface tension, cmc and surface area per molecule measurements.

The phenomena of the (*Turn to Page* 112)

Table X. Emulsion Screening[1]

Surfactant	Relative Stability				
	Xylene	Kerosene	EDC	DBP	Textiline
A	poor	poor	poor	poor	poor
B	good	good	good	good	poor
C	poor	poor	poor	poor	poor
D	good	poor	poor	good	poor
OPE_{10}	good	fair	poor	good	fair

(1) 5% surfactant on weight of oil; 40:60 oil/water by volume.

Coconut Oil Outlook

By Duncan Ridler*

Part II

Philippine coast line between Atimonan and Gunaca (Tayabas) on Island of Luzon, large copra, coconut oil producing region.

THE speed at which our technological age is moving is obviously affecting coconut oil uses much more than methods of producing it. Because coconut oil has a number of major end uses, it is being affected by technical advances in a number of industries.

What is the pattern of demand today and what developments will be operating in the future? First, what are the destinations of world trade in coconut oil and copra? In 1957, the last normal and a peak year, 3.1 billion pounds of copra and oil (in terms of oil) were surplus to producers' requirements. The United States took 590 million pounds (nearly 20 per cent), and Western Europe was the largest market, 1,700 million pounds, 56 per cent) with Western Germany alone buying 560 million pounds. Other important customers were Japan, Colombia, Australia and Canada, together accounting for 270 million pounds and 9 per cent, India 218 million pounds and 7 per cent; the remaining 9 per cent went to other countries.

The larger supplies available up to 1957 were mostly absorbed by European users, since United States requirements levelled off some years ago at around 600 million pounds, and imports into producing countries have not fluctuated much, except as India's buying changed. Conversely, the contraction in supplies in 1958 and 1959 was mainly reflected in shipments to Western Europe, and to smaller extent to other non-producing countries except the United States. In mid-1959 however the low point of supplies was passed, with Philippines shipments picking up very rapidly in the second half of the year, and supplies from other exporters in total somewhat higher than in 1958. Provisionally, 1959 trade is estimated at only moderately below 1958, around 5 per cent. With prospects for more normal supplies in 1960, we can look forward to a resumption of the pre-1958 trade pattern.

The growth of the world's main fat manufacturing industries has boosted the import demand for coconut oil, as part of the total demand for imported fats. Looking at the overall fats and oils situation, an estimated 17.5 billion pounds of raw fats were required by the world's margarine, soap and shortening industries in 1959, 35 per cent of world fat production. Excluding the United States, the bulk of the fats obtained through international trade are channelled into the soap and hardened food fat manufacturing industries. We estimate that between 30 and 40 per cent of internationally traded fats go into margarine alone. With coconut oil the leading fat in international trade and on the import list of Western Europe, developments in the soap and hardened

*Mr. Ridler, who is with the Food and Agriculture Organization of the United Nations, in Rome, Italy, presented this discussion at the 33rd annual meeting of the Association of American Soap & Glycerine Producers in New York City, Jan. 20, 1960.

food fat industries are where the principal determinants of its future demand will reside.

The most important single product market for fats and oils is in margarine making – in 1959 nearly 8 billion pounds. Margarine became the leading industrial outlet for crude fats in 1954. There has been an expansion of over 60 per cent in margarine use of these raw materials since 1958 (3.3 billion pounds of fats), and the industry's use of world output of all suitable fats has increased from 12 to 16 per cent.

By contrast, demand for fats from the world's soap makers, while still around 7 billion pounds, has remained at a constant level for several years through the offsetting effects during the 1950's of a decline of 40 per cent in soap output in Western Europe and North America, but a rise of 80 per cent in other areas. As yet, the growth of soap manufacture in the rest of the world, either in the U.S.S.R. or other countries, shows no sign of slackening. But the fact remains that world use of fats in soap has reached a peak and is likely, to grow smaller in the future because of the growing competition by synthetic detergents. Shortening manufacture, which provides a market for at least 2.9 billion pounds of fats, has also changed little in the '50's, and that little mostly in the United States. A moderately expanding consumption sector is Western Europe's use of fats and oils, for all other purposes. This includes coconut oil but excludes technical and olive oils, and butter. Consumption is now around 5.4 billion pounds, and 8 per cent above 1954, the first year when restrictions on consumption were practically abolished.

Margarine then has been the chief demand sector expanding, but even there, the rate of increase has been much more modest since 1957 than before. An actual decrease in fat use for margarine occurred in Western Europe after that year partly due to the ample and cheaper supplies of butter, but possibly also reflecting ceilings in per capita food fat consumption in some countries. With declining soap manufacture in Southern Europe, per capita food fat consumption approaching an upper limit in North West Europe, and protected high price level economies in Southern Europe, the demand for imported fats and oils in the largest division of the world market is likely to grow more in line with general population increase in the 1960's. Population growth is forecast to reach around 5 per cent by 1970 over 1960.

The general conclusion then from this short review of general fats and oils demand, emphasizing the demand for manufacture, indicates that strong growth is not forecast for any major sector. The demand for coconut oil, or any other single commodity, may change as it replaces, or is replaced by, other fatty raw materials in the 1960's. But exporters probably will not benefit from a rapidly expanding general market as in the 1950's.

End Use Disposition

How is imported coconut oil used at present? A summary of the disposition of coconut oil in non-producing countries is a difficult exercise statistically. However, it has been possible to put together some figures on end-uses for countries which account for three-quarters of world imports of coconut oil. These countries also have the bulk of the world's fat-using industries, leaving out the U.S.S.R. (The U.S.S.R. imports 25-30 million pounds of coconut oil a year, which I should imagine go almost entirely into detergents.) The striking feature in the period from 1955-58, for which we have figures, is that the proportionate disposal of coconut oil between different products has varied very little from year to year despite price movements. Nearly 70 per cent went into food products and around 20 per cent into soap. If the United States is left out of the picture, over 80 per cent was going into food products and 14 per cent into soap in other reporting countries. Use in other inedible products was around 13 per cent in all countries, but only a minor proportion, less than 5 per cent, with the United States excluded. The stability of these proportions from year to year is somewhat surprising. They did change radically in 1959 through reduction of coconut oil use in food products. For example, a very sharp reduction in use for food, mainly margarine, occurred in Western Germany as a result of the shortages and high prices. Utilization in the year ended June 1959, was only 284 million pounds as compared with 476 million pounds in the previous period, a decline of 40 per cent. Technical uses went down from 42 to 31 million pounds. Changes in the opposite direction have probably been occurring gradually in the last six months.

Coconut oil use in margarine was increasing until the shortage began in 1958. This was partly because quality considerations are so important. In Germany for example, there is a trend towards an all-vegetable margarine and towards reducing the proportion of hardened fats. This favors coconut oil, which may be 40-50 per cent of the fat used in the best.

In food products, probably only slightly more coconut oil was destined for margarine than for all other uses together. Outside the United States, however, margarine takes up a much more important share of the total. Other uses are chiefly in bakery, confectionery and ice cream manufacture. From 90 to 100 million pounds apparently are used regularly in shortening. In countries for which there is detailed data, the Netherlands and the United Kingdom are examples, these other food uses are growing, a trend comparable to experience in the United States. In the United Kingdom, use was 125 million pounds in 1958, half of that in the United States.

From 1958, use in margarine in most countries dropped off very quickly indeed, while uses in other lines remained steady, both in the United States and in other countries. Data on uses are not yet available for 1959, but from partial information, resistance to price changes reflecting the strength of specialty demand for coconut oil was demonstrated in all product uses except margarine, i.e. in soap, in other food products and in other inedible uses. This has apparently been the experience also in the United States in these three fields.

Margarine formulas and coconut oil use in soap as compared with other raw materials are very different in the United States from those in the other countries. In 1957 for all reporting countries coconut oil constituted 16 per cent of the fats and oils used in margarine and 14 per cent of the soap fats. For European countries its importance was greater, averaging 27 per cent of the margarine ingredients and 11 per cent of the soap fats, while in the United States it was less than 1 per cent for margarine and 16 per cent for soap. In Europe, palm kernel oil use competes quite strongly in soap, but in margarine the competition is wider. In Europe, of course, coconut oil is competing for margarine use chiefly with other imported raw materials, and broadly speaking without discrimination as far as tariff levels are concerned, even within the Common Market, if it is extracted in the importing country.

Future Demand

In our view the Western European region and a few other industrialized countries still would be the main outlet for any increased export supplies of non-technical fats and oils, though at a much more modest rate than over the last ten years. In the general fats and oils demand situation, any substantially larger market for coconut oil would probably have to be achieved through a stronger competitive position in relation to other fats in food manufacture, particularly in Western Europe. Import demand in the United States may even be lower, at least during the next two years while the stockpile is sold, and if palm kernel oil is eventually used in larger volume. A minor proportion of coconut oil will continue to be used in non-food products, on the whole, but the volume will probably not change much in the near future. Coconut oil use in soap does not seem to be much affected by price, and may not decline drastically, unless synthetics invade the toilet soap field in large quantity. Other specific non-food uses are growing gradually, but the volume is still small outside the United States. While coconut oil will have to compete with other margarine and shortening raw materials, there is room for expansion in this field, particularly due to the tendency to raise the quality of margarine.

However, coconut oil price movements are somewhat resistant to general market price changes, partly because of the special demand, and perhaps because copra is one of the largest supplies of crushing materials available in Europe. The margarine demand for coconut oil is therefore the market which shows most variation in volume, but at the same time this variation does act to moderate price instability for users with a less elastic demand than the margarine markets. It is in fact a "shock-absorber."

Now, taking the demand situation in conjunction with supply prospects, the conclusion would be that we are coming into a less dynamic period, but not a situation of radical disequilibrium. World supplies of coconut oil may not expand much but there could be some improvement towards the end of the decade. Traditional markets for fats and oils would also seem likely to expand less in the 1960's. Given the moderate supply outlook, and assuming that world export supplies of coconut oil would not move far from the 2.6-2.9 billion pounds range, strong pressure for larger outlets in margarine seems unlikely to develop. Special users of coconut oil have a more rigid demand and are generally willing to raise prices. Margarine users will absorb only temporarily prices which are out of line with those for other fats before reducing their purchases and substituting other fats. Since coconut oil use in products other than margarine and shortening is expected to remain the smaller use, it would seem that no long term stresses caused by chronic shortages would develop in the foreseeable future, that scarcity price increases woud be very temporary, and that the situation would call for no major changes on the part of users other than possibly margarine and shortening makers.

Future Price Trends

Of course, one cannot hazard even a guess at price trends in the 1960's, but, at least in the demand situation, nothing to force an upward price trend appears to be in sight. Exporters are much concerned with prices because, although copra prices have been so exceptionally high over the last eighteen months, for the 1950's as a whole, no general price movement occurred. Terms of trade for primary producers have worsened, and the general level of prices of all fats and oils was lower at the end of the period than at the beginning. If export supplies of fats and oils from Africa and North America continue to grow, and international demand prospects remain relatively weak, it looks as if coconut growers are going to have to rely on improved productivity for any increase in their returns. It is to be hoped that in the next ten years there will be fewer crises to bring out very wide swings in fats and oils prices, and that the price situation will set a steadier framework for investment in coconut.

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Aerosol Sales in Food Chains

Grocery chains 'love' aerosols because they offer high profit margin, demand little shelf space. Close cooperation needed between loaders and chains for continued happy relations.

By Gerson Barnett*
Giant Food Stores
Landover, Md.

I COULD cover the subject by merely but sincerely saying, "We love aerosols." However, in deference to the programming, I will elaborate to some extent on the reasons why we do love aerosols and a little on what fillers can do to encourage this affection that has resulted in a happy marriage for our two industries.

In 1958 the dollar value of aerosol products sold through food stores amounted to $206,800,000. This was an increase of 21 per cent over the previous year and represented almost four times the total amount of aerosols retailed in this country only seven years earlier in 1951. This retail volume was achieved at a margin of profit for the grocery chains considerably higher than the average margin of all other products retailed through these channels. Why shouldn't we love aerosols?

For the most part the aerosol business has enabled grocery chains as well as other segments of the retail food business to increase dollar volume and profits without suffering a loss of business in non aerosol packages. This increased business in many cases represents an entirely new source of volume and profit for our industry. It is a distinct pleasure to list and retail products that are not parasitical in nature, that is, do not just take a part of the existing volume at the expense of shelf space. When you consider that this rather substantial volume is going through our retail outlets on a minimum of shelf space, at an above average margin of profit computed on a larger than average retail sale price, then you realize what a significant contribution the arrival of aerosols has meant and is continuing to mean to the retail food business and why we are so enamoured with aerosols and their manufacturers. Certainly they are, in part, an answer to the constant search by all segments of the food industry for products that will swell the dwindling profits in a highly competitive and efficient business.

Mr. Barnett is director of purchases for Giant Food Stores, Landover, Md.

And that is not all. Loaders are turning out their products with a view toward volume sales. We have seen constantly improved packages find their way on to our shelves and off our shelves. We have seen fillers become aware of relative details which are important when competing with other items for the consumer dollar. This is our method of doing business. We like it and like those heading our way.

We also are aware of the constant research effort supported by the aerosol and related manufacturers seeking to develop new convenience products for the consumer, which enable us to team with them in providing comfort, service, and convenience for the American consumer. These packages permit us to add constantly to the very desirable aerosol sales volume and the resultant profit.

Let's face it though. The main reason we love aerosols is that they are satisfying our customers. They are making a solid contribution to our standard of living and making our customers happy. When our customers are pleased with the products we distribute, then we have fulfilled a good part of our responsibility.

The reasons I have just outlined for our affection for aerosols

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*Talk presented at the 46th annual meeting, Chemical Specialties Manufacturers Association, Washington, D. C., Dec. 8, 1959.

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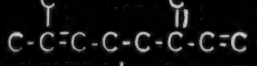
ANNOUNCING

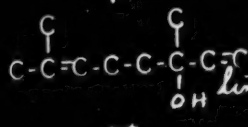
β-Pinene

Pyrolysis



Myrcene

hydrate



linalool

acetylate → linalyl acetate

or

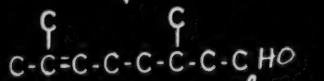
geraniol (or its isomer - nerol)

acetylate → geranyl acetate

hydrogenate

citronellol

dehydrogenate

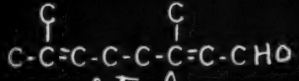


citronellal

hydrate

hydroxycitronellal

dehydrogenate



citral

condense with acetone

pseudoionone

cyclize

alpha- and beta-ionones

Dec 11, 1959

A NEW AND CERTAIN SOURCE OF AROMATIC CHEMICALS

The Glidden Company and Firmenich Incorporated have now joined to provide synthetic aromatic chemicals from a source in unlimited domestic supply.

New and patented developments by the organic chemists of The Glidden Company have now made it possible to produce *synthetically* the aromatic chemicals previously obtained from remote natural sources. These newly derived materials offer manufacturers a series of important advantages.

Most important of these advantages is freedom from the supply, quality, and price fluctuations which are characteristics of natural aromatic oils. The raw material utilized in these processes assures that these synthetically produced "natural" products will continue to be readily available in unlimited quantities on a realistic and stabilized cost basis.

Another major advantage is the purity these new processes make possible. Since they involve the conversion of pure ten carbon atom hydrocarbons to such products as linalool, geraniol, and citronellol which are ten carbon atom *alcohols*, no strange products appear in the reaction and it is possible to achieve a purity entirely impractical with isolates of essential oils. "High off-odor values" are practically eliminated. The perfumer, freed from the limitations imposed by undesirable and unpredictable side elements occurring in natural products, may modify the basic pure material to achieve whatever fragrance notes he desires.

Developed with the technical collaboration of Firmenich, who for more than seventy years has been a world leader in the supply of flavors and fragrances and among whose associates are a Nobel Prize laureate and 4 ACS-administered award recipients, these new aromatics are being manufactured by The Glidden Company and will be distributed exclusively throughout the United States and Canada by Firmenich Inc. Terpenic aromatics now available include: geraniol, linalool, citronellol and their esters. For further information on this revolutionary new development write Firmenich Inc., 250 West 18th Street, New York 11, New York.

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Nopco—due to advanced knowledge of the chemical reactions involved—has been able to develop a series of alkylolamides which function efficiently but are almost totally free of unreacted diethanolamine, ester-amide and other by-products. Nopco Hy-purity Alkylolamides, the Hyonic LA Series, offer amide content approaching 100% in contrast to the conventional 60%. Used with other surface-active agents in dishwashing detergents, shampoos, bubble baths, industrial cleansers, light duty liquid cleaners, floor cleaning preparations, and textile detergents, they offer these advantages:

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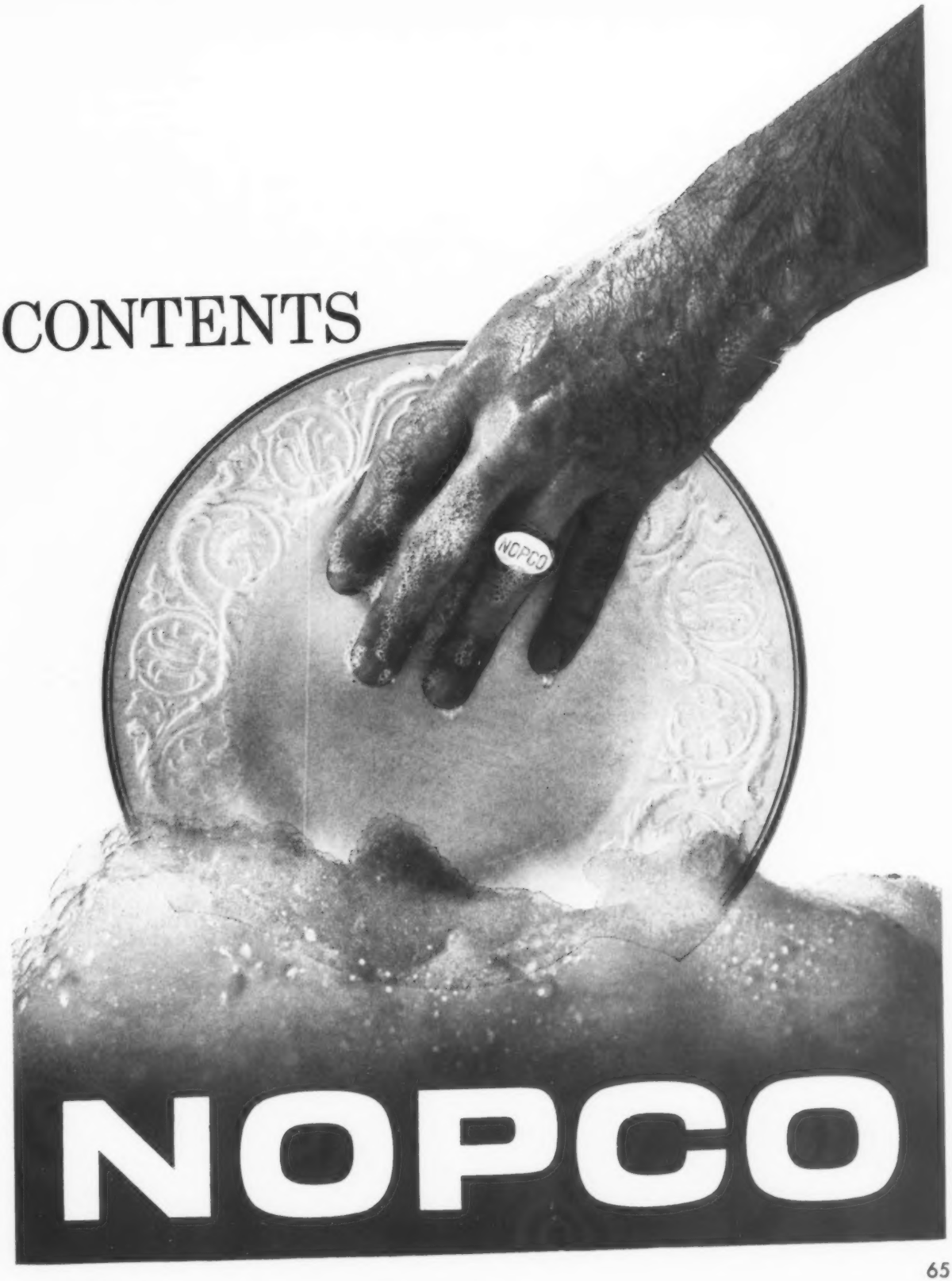

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ADVANTAGES of membership in the Chemical Specialties Manufacturers Association are many. Direct services to members from CSMA headquarters, including the regular bulletin service, are of vital importance to every member firm. Through participation in the affairs of this very active trade association, many valuable contacts have been and can be made. And there are numerous other benefits.

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A. A. Mulliken
Secretary

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The wide range of physical properties now available in Eastman's Epolene series of low-molecular-weight polyethylene resins provides formulating flexibility never before possible. For with the addition of three new resins (Epolene LVE, HDE and HD), polish makers can choose now from among seven different types to improve existing formulations or to develop new products.

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Epolene LVE *emulsifiable* • Lower in melt viscosity than the other emulsifiable Epolene resins, Epolene LVE has somewhat better handling characteristics and is the easiest to emulsify. It is softer than other resins in the series, too, and therefore may be expected to contribute better anti-slip properties and rebuffability to floor polishes made from it.

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Epolene N *non-emulsifiable* • Epolene N can improve significantly the properties of paraffin, microcrystalline or other waxes and is easily blended with these materials. It can replace part or all of the hard waxes in solvent paste polishes, for example, automotive polishes. Such polishes are characterized by low color, excellent hardness and gloss, and remarkable durability.

Epolene LV *non-emulsifiable* • Epolene LV and Epolene N are useful in similar applications. The LV type is softer than Epolene N, however, and because of its lower melt viscosity is somewhat easier to handle.

Epolene HD *non-emulsifiable* • An extremely hard material, Epolene HD is nevertheless easy to handle because of its low melt viscosity. It has a high softening point, and may be blended with waxes to increase their melting points. Epolene HD has a higher density than the other non-emulsifiable polyethylenes in the series.

Epolene C *non-emulsifiable* • Higher in molecular weight (7000) but lowest in density (0.907) of all the Epolene resins, Epolene C may be used in modifying waxes to increase melting points or to improve toughness and gloss.

Type	Molecular Weight	Brookfield Viscosity (cps. @ 120°C.)	Density	Penetration Hardness (100g./5sec./ 77°F., 10ths of mm.)
Epolene E	2500	1500	0.938	2
Epolene HDE	1500	455	0.956	1
Epolene LVE	1500	400	0.939	5
Epolene N	2500	2500	0.928	1
Epolene HD	1500	340	0.938	0.5
Epolene LV	1500	360	0.925	3
Epolene C	7000	16,000	0.907	7

If you are using low-molecular-weight polyethylenes in your polishes, investigate the complete Epolene series. Your Eastman representative will gladly explain the advantages of each of the resins in the series and will show you how to realize the most profitable use of them in your formulations. Ask him for specific formulating assistance and about the new time-saving, cost-cutting emulsifying technique developed at our laboratories.

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Evaluation of Automotive

Cooling System Additives

A novel simulated cooling system permits realistic testing of automotive radiator cleaners, rust inhibitors, and stop-leaks

By Irvin W. Folk*
Atlas Supply Co.
Newark, N. J.

MAINTAINING the high quality of a product depends upon a quick and effective method of evaluation. This appears to be especially true of cooling system additives because of all the variables involved in trying to repeat a test or to duplicate any condition in a cooling system.

The availability of new materials that could be used to upgrade cooling system products and the yearly changes in cooling systems is making better test methods for these products even more urgent.

Devising test methods to evaluate products for which there is no standard or adequate test method is not new for us at the Atlas laboratory. Some of these tests are used only by us; some are used by the manufacturer involved; others are now standard in the industry. We know we have not yet solved all the problems involved in testing cooling system products, but we believe we have made considerable progress. We also believe that if our findings are passed along they may serve as a nucleus for further progress, both in test methods and product improvements.

We shall first consider radiator cleaners, then rust inhibitors and, last but not least, stop-leaks.

Basically, a radiator cleaner should remove and hold in suspension deposits that form or collect on the walls of the engine water jacket, radiator, thermostat, heater core, radiator hose, etc. These deposits are many and diversified and the question of their solubility in any single cleaning solution may be quite complex.

The cleaner must *not* remove deposits in chunks that would restrict or clog the small passages in a radiator or heater core; it must not damage any of the various materials in a cooling system and it must not cause objectionable foaming. A cleaner *should not* leave residual deposits of its own that would contribute to chronic rusting or to degradation of other products, such as rust inhibitor or anti-freeze.

We must also be realistic about the human element involved and make sure that there are no serious consequences if the product is not completely drained from the cooling system. Those of you who have tried to remove the block drains on some V-8 engines know why this operation is liable to be bypassed.

This all adds up to what could be termed an "impossible situation," but it can also be looked upon as a challenge and outstanding opportunity in a field where there are plenty of potential paying customers: – Fifty Million Car Owners.

We started testing radiator cleaners a number of years ago by much the same method as everyone else; that is, by putting them in dirty cooling systems, then running the engine for the recommended time and observing what drained out. To help improve this method of testing we added:

1. A visual inspection before and after cleaning by looking at deposits in top radiator tank and examination of deposits in the block by momentarily removing the thermostat.
2. Centrifuging a sample of the coolant containing the cleaner before and after the test. This gives an indication of how much and what part of the deposits were being removed.
3. A "look-see" for any severe attack by the cleaning solution on the various metals and materials composing a cooling system. This involves submerging regulation cooling system metal test coupons and pieces of radiator hose material in a beaker of solution and holding it at 200°F. for one hour (average dilution is one package to 20 quarts of water).
4. A cleaner of the fast-flush type, is also tested for compatibility with the most widely used anti-freeze solutions. To do this, we pour the right amount of an average dilution of the test cleaner into a beaker containing one-third of the anti-freeze in question

*Paper presented at 46th annual meeting, Chemical Specialties Manufacturers Ass'n, Washington, D. C., Dec. 8, 1959.

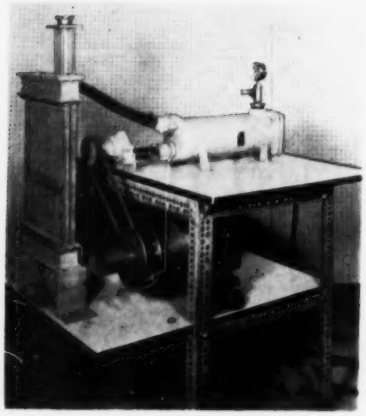
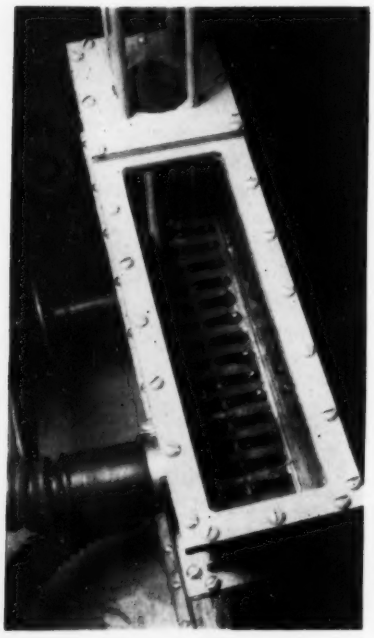


Figure 1

and two-thirds tap water. We then heat the entire mixture to 200°F. for an hour, then let it cool and observe for any objectionable heavy precipitation. A very light flock-type precipitation is not objectionable although we prefer as little precipitate as possible.

We, and the industry in general, have been getting along on this and other similar methods of testing up to now. But we have to admit they leave much to be desired, especially when exploring the possibilities of a new cleaning material. Absence of a better test method is very likely letting some effective new cleaning materials slip by unnoticed.

Figure 2



There is urgent need for a good method of evaluating various potential ingredients, one that will permit the technician to make a closer study of any outstanding performance among the various potential materials.

This new test method must do at least four things:

1. Perform or simulate all functions of a normal automotive cooling system.
2. Permit close visual observation of what is taking place during the test run.
3. Enable identical conditions to be maintained when repeatability or comparative tests are desired.
4. Accelerate emergence of cooling system problems, such as foaming tendency, clogging of radiator tubes, corrosion tendencies, air leaking into coolant, etc.

The simulated cooling system shown in Figure 1. was recently designed, built, and checked at the Atlas laboratory. This unit is our latest attempt to upgrade evaluation of radiator cleaners. We have tried to design a single test unit that will perform all the required functions and at the same time permit us to get a close look at what is taking place. All of the components of this unit are put together in such a way that a close-up study can be made of deposits being removed from a radiator core, etc. (Fig. 2.). Interior of the cast iron chamber and heating unit of our apparatus appear in Fig. 3. Pieces of test radiator core, heater core, thermostat, or parts of an engine water jacket can be placed in the cast iron tank by removing end plate.

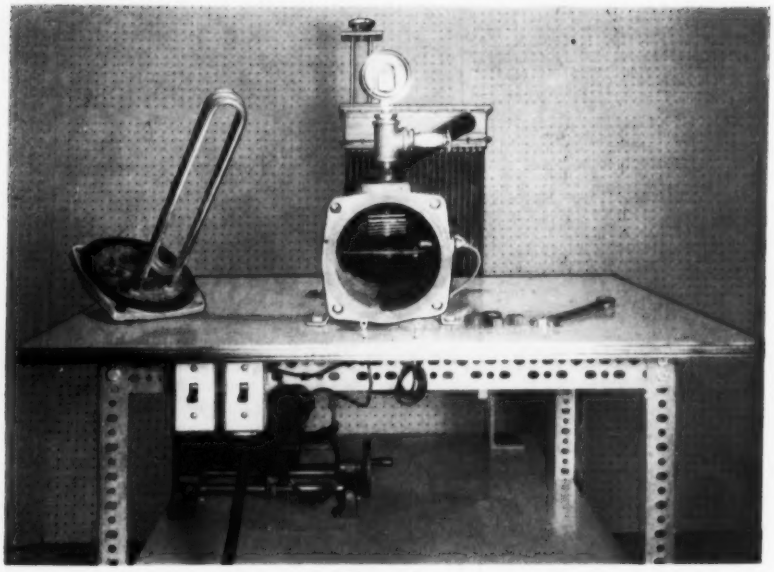
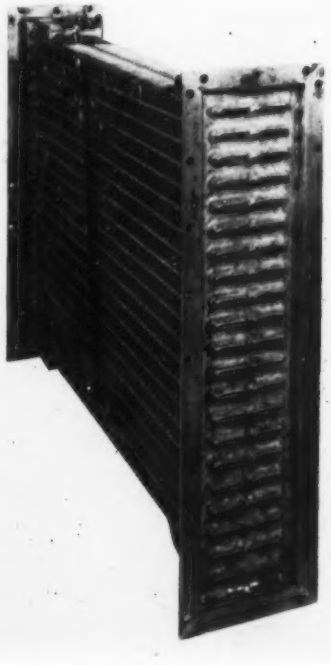


Figure 3

Figure 4



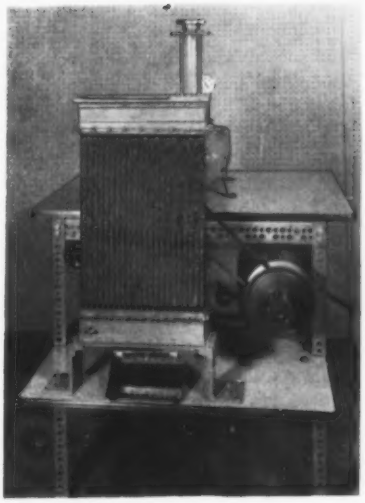


Figure 5

The radiator core (Fig. 4) is one half of a 1959 "Chevrolet" radiator. Using one half of a radiator core permits making two-full-scale tests exactly alike on one radiator, either dirty or clean. A number of duplicate test runs can be made by sealing the ends of all but a few of the radiator tubes. They can be easily sealed with a gasket or a compound when the radiator tanks are removed by unbolting. Aluminum cooling system parts and/or test metal coupons can simply be attached inside this unit for testing purposes if and when desired.

This unit is designed so that within a few hours and a little Yankee ingenuity, a close-up study can be made of almost anything regarding radiator cleaners. There is glass in the bottom of this radiator (Fig. 5) so that quick compatibility tests can be made even between various anti-freezes and fast-flush radiator cleaners when used either for immediate draining or when drained after prolonged use. Visual inspection, centrifuging and bench corrosion tests can also be run with this tester if desired.

Rust Inhibitors

When rust inhibitors were first introduced, their job was quite simple. Actually all they had to do was to reduce rusting of the iron parts in a rather cool running, low horsepower engine. Today, their job is much more complex. Present-day automotive cooling system inhibitors must not only prevent rusting of the iron parts under very difficult conditions, but also prevent corrosion of a variety of metals that are quite unalike in many of their properties.

A rust inhibitor must *not* cause objectionable foaming of the coolant or interfere with normal cooling of the engine. It must *not* damage the radiator hoses, gaskets, water pump seals, or any of the cooling system metals, especially solder. The inhibitor must have an effective life of at least one full season under average use conditions.

The following test methods have proven satisfactory for testing inhibitors up to the present time:

1. Rust and corrosion inhibiting properties of an inhibitor as well as its tendency to attack certain metals can be evaluated by using the ASTM glassware accelerated corrosion test D1384 for anti-freeze. (Fig. 7). We find that there should be not more than 10 mg. weight loss in a regulation 25 square centimeter metal coupon of copper, solder, brass, steel, cast iron and aluminum.
2. Foaming tendency of an inhibitor can be checked by using the proposed ASTM method for anti-freeze. (Fig. 8). We inject 1,500 cc's. of air per minute through the inductor tube into 200-ml. of solution contained in a 1,000-ml. graduate at 180°F. We like to have not more than a 350-ml. rise of foam and like to have the foam break completely in 45 seconds; however, if the product operates satisfactorily in the dynamometer test and in actual usage road testing, we will permit a little more than the 350-ml. of foam.
3. We also use ASTM D1121-54 method of determining reserve alkalinity to get a reasonable idea of how long the inhibitor will last. Due to the difference in stability of glycol solutions and straight inhibited water, we believe you need only half the reserve alkalinity for a rust inhibitor that is required for a glycol-type antifreeze; therefore, if

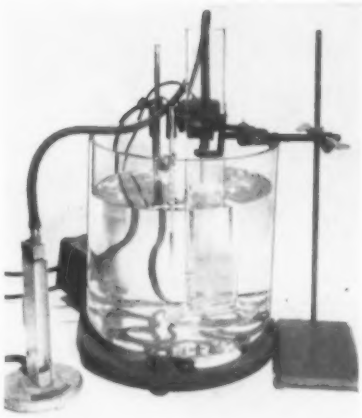
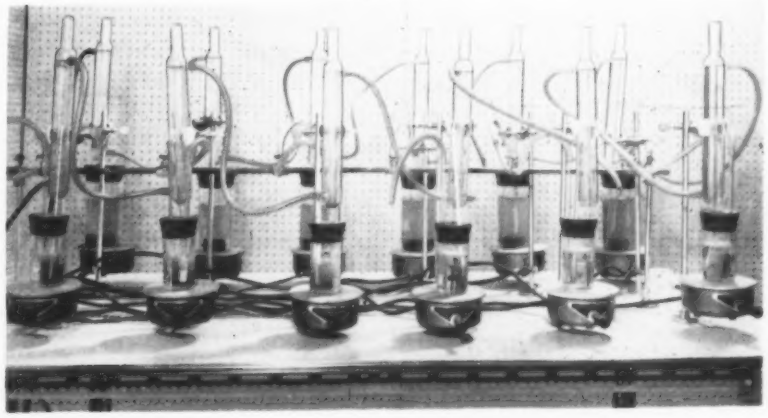


Figure 8

Figure 7



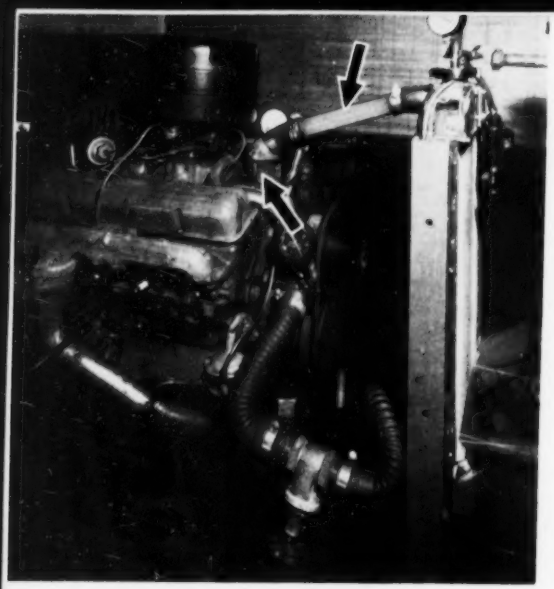


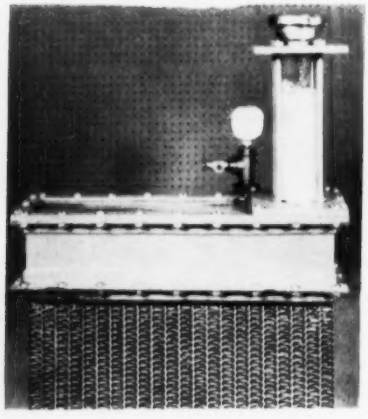
Figure 9

5-ml. of a 1/10 normal hydrochloric acid solution will not put the pH below 5.5, we consider the reserve alkalinity to be satisfactory.

4. Compatibility tests can be made by the method decribed above for a radiator cleaner (test number 4).

As a final check we run the inhibitor in our dynamometer cooling system to study its behavior at various speeds and under different pressures. The dynamometer has a glass tube in the top radiator hose, (Fig. 9) thermostat housing and a window in the top radiator tank. We find this test run usually correlates very well with the previously mentioned bench tests for foaming tendency. However, if foaming difficulty is encountered with rust inhibitors or any other cooling system additive being tested, it must be dealt with accordingly.

Figure 10



We also always check for any measurable increase in operating temperature during this runout.

So far the above methods of evaluating or comparing rust inhibitors have been quite adequate. We are not sure whether they will continue to be equally satisfactory in the future due to the appearance of some new metals in various parts of cooling systems.

A glass neck to measure foam, (Fig. 10) is featured by this unit in hope that it may be used for quick comparison tests or in place of the dynamometer if desired. Our simulated cooling system unit seems to hold considerable promise for quick comparison of over-all performance between a product known to be satisfactory and one in question. Metal test coupons to measure corrosion can be placed inside the cast iron chamber during this test if desired. Test runs can be as short as a few minutes or as long as several days.

Cooling System Stop-Leaks

Stop-leaks started very innocently 'way back when automobiles were wheezing and puffing along at the break-neck speed of about 20 m.p.h. The radiators or coolers, as they were sometimes called, had tubes a quarter of an inch or so in diameter; and since that was the smallest opening in the cooling system by a big margin, almost anything that could be poured into the radiator would circulate without trouble. Nobody was very concerned about antifreeze because one had so many other troubles with these cars and the roads in the winter that a frozen radiator was rather minor and didn't cause much concern. In fact, nobody ever even bothered to put water in the cooling system in the winter until after he was sure he could start the engine and get the darn thing in gear. Some of the more hearty individuals managed to overcome all the problems and get going and sometimes made it into town and even back home on a nice winter day. Sometimes they would get stuck; and

Figure 11

while they were getting going again, the water in the radiator would freeze up. After a few freeze-ups and near blow-ups from running dry, the owner would be troubled with leaks in the radiator tubes. Now there were plenty of good blacksmiths and tinsmiths who could solder real well; but when they were confronted with all them little fins and all the other contraptions on them gas buggies, they gave up and promptly told the owner to "get a horse." Well, sir, it seems that was just what was needed to bring out the resourcefulness in one of these pioneers of motordom; for while he was pondering the advice, he decided he didn't really need the front end of the horse at all—so in desperation he tried his idea, and it worked real good.

Now he didn't rightly know if his product was organic or inorganic, but he could do something very few present chemists can do—he could call the source of his organic residue by its full name. Availability, shelf life, packaging, and so forth were no problem; and you could pick this product up along the road almost anywhere.

The less hardy city fellers found that ground ginger root, rolled oats, whole wheat flour, ground flax seed, pepper, etc., would stop radiator leaks. What

(*Turn to Page* 101)

Top photo: aerial view of new, $1,300,000 plant and office building of Zep Manufacturing Corp. on Seaboard Industrial Boulevard, Atlanta, Ga. New headquarters provides 160,000 square feet of floor space. Lower photo: truck loading dock.

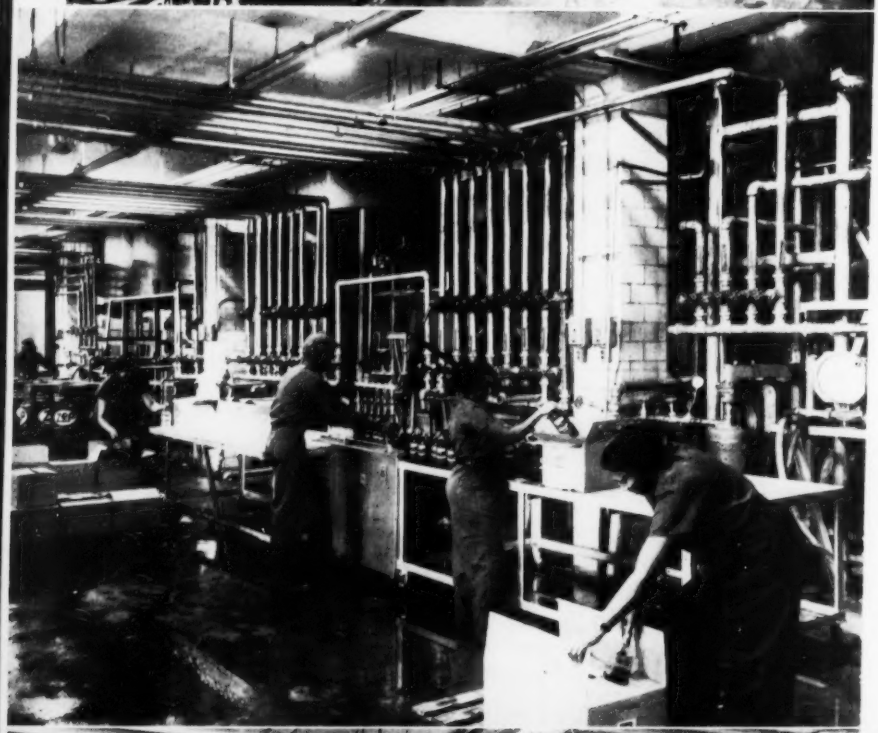
ZEP'S NEW HOME

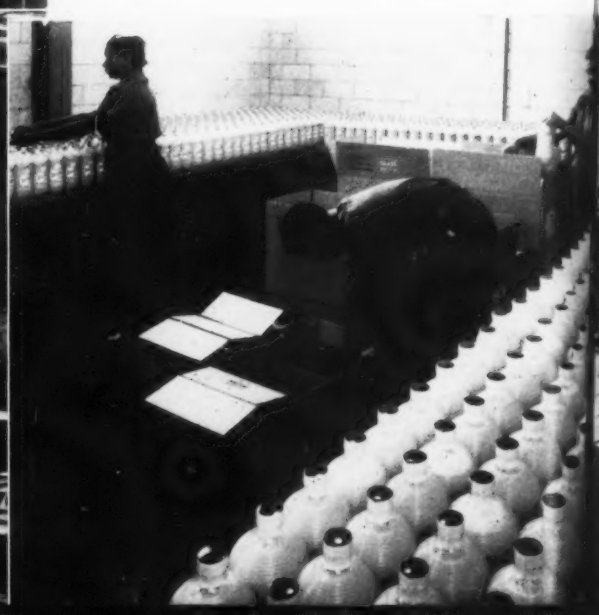
WHEN Zep Manufacturing Corp., Atlanta, Ga., manufacturer - distributor of maintenance and sanitary supplies and equipment, recently formally dedicated its new $1,300,000 chemical specialties manufacturing plant on Seaboard Industrial Boulevard, the firm underlined again the fact that its home city is the capital of the sanitary supply industry.

The new home of this giant (and still growing!) among giants in the so-called "sanitary chemicals" business, is a large, modern, two-story building, situated on a sloping 10½ acre tract in the Chattahoochee Industrial Area. Occupying 148,000 square feet of the better than 160,000 square feet provided by the new structure are the highly automated plant, and warehouse and laboratory installations. The remaining 12,000 square feet are devoted to offices. On the plant site is a tank farm large enough to supply storage space for over 300,000 gallons of liquid raw materials and finished products.

In keeping with the design of the building, plant equipment and production methods are completely modern in every respect. Automation is employed wherever possible in manufacturing operations. The warehouse is equipped with the latest in materials handling devices, including a loading dock (see lower portion of cut above) which will accommodate 28 trucks and trailers. A number of dock levels have been installed to assure safe, smooth loading and un-

Photograph of oil painting of Mandle Zaban, founder, president and chairman of Zep Manufacturing Corporation.





Mixer, top, left, for blending powdered products.

Center: high speed liquid filling line.

Bottom left: drum filling area is equipped with latest types of metering and weighing devices.

Bottom right: Packing small containers in cartons.

hampered unloading operations.

Manufacturing operations are carried on at two different levels to take advantage of gravity flow of materials in processing. Mixing rooms, equipped with the most up-to-date mixing devices, are located on the upper level. Here, too, are a laboratory, a storage room for incoming materials, tank storage that can accommodate 30,000 gallons of liquid raw or finished materials and a 14,000 square foot warehouse area for storage of maintenance tools, such as floor machines, waste receptacles, brooms, mops, soap dispensers, etc. These items are jobbed by Zep, whereas the firm produces almost all of its own chemical specialties products.

More mixing rooms, warehouse space for containers, and a storage area of 65,000 square feet for finished packaged goods are located on the lower level. Loading docks adjoin this storage area.

The new Zep headquarters stand as a monument to the progressive company founded 23 years ago by Mandle Zaban, now president and board chairman. Prior to founding the firm in 1937, Mr. Zaban was sales manager of Puri-

tan Chemical Co., another major Atlanta sanitary supply firm. Zep was started in a building of 3,700 square feet at 397 Peachtree St., Atlanta. From small beginnings 23 years ago Zep has raced ahead in an industry whose major growth has come since World War II. Its present spacious brick building provides over 45 times as much floor space as its original location in downtown Atlanta. Soaring sales have not only justified physical plant growth, they have demanded it.

In a city that boasts six or seven sanitary supply firms having annual sales volumes of one million dollars, Zep, with sales of $4 to $5 million annually, stands among such "giants" as Puritan Chemical and Selig Co., whose sales are believed to be in this range. In fact, there are some who think that Zep may be top dog.

The Atlanta sanitary supply firm does not confine its efforts to the Southeast, but has branches in Dallas, set up in 1952; Kansas City, Mo., established in 1953, and a third in Cleveland, 1956. In fact, Zep presently operates in 40 states. To cover such a territory, Zep employs approximately 100 salesmen, a ten-fold increase over the 1945 staff.

Inside the general offices, style and convenience have been emphasized. Light colors, easily maintained materials, and efficient layout characterize the offices. In addition to a cafeteria for employees, the new Zep headquarters have an outdoor lounge and recreation area for the company's 265 employees.

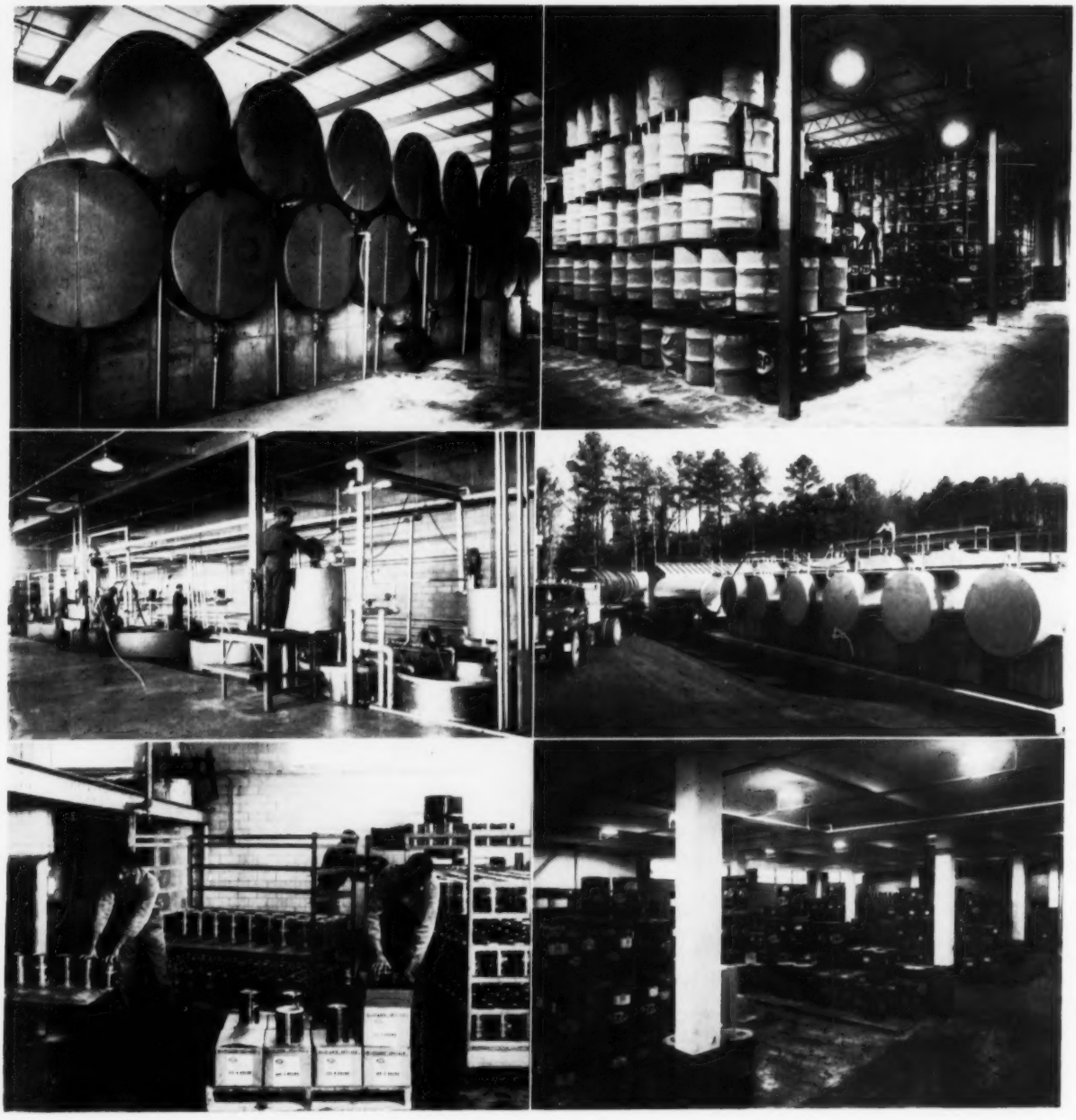
Erwin Zaban, executive vice-president, of Zep in his new office.

These conveniences for employees are illustrative of the long-standing policy set from the beginning by Mandle Zaban. He traces the success of his business to the theory that it is the employee who is the backbone of the company and that he should have a greater share of the business. As a result, employee morale is high at Zep, and employee turnover low. High salaries and liberal bonuses have always been a company policy. An indication of how Zep's management policies work out is seen in the fact that its first chemist, its first truck driver, its first warehouseman, its first office worker and the first salesman hired by Mandle Zaban are still with Zep after 23 years. In addition, the firm has a pension fund that is fully paid by the company. The plan allows an employee, upon reaching age 60, to draw his share in monthly payments or to receive it in a lump sum—in either case he can remain on the job, without retiring. A large part of Zep common stock is employee-held.

Many types of building materials and various kinds of flooring have been used in the new Zep headquarters. New materials serve a two-fold purpose. Besides their usual function, they provide Zep's research laboratory, under the direction of Harold B. Friedman, with a built-in proving ground for new compounds developed in the laboratory.

Zep produces about 400

Automatic powder filling of small packages of "Zeptomatic," machine dishwashing compound. Dustless filling unit is also fast and efficient.



Battery of enclosed storage tanks (top, left) holds both raw materials and finished products. Liquid storage capacity of new Zep plant in Atlanta, Ga., exceeds 300,000 gallons.

An array of mixing tanks at new Zep plant. With latest devices and equipment, manufacturing can be carried out under carefully controlled conditions. Two level plant makes possible gravity feed from tanks to filling lines on lower floor. Section of Zep plant appearing in bottom, left, photograph is devoted to filling of mechanics' waterless hand cleaner.

Vast warehouse (top, right) for storage of 55-gallon drums. New Zep plant can store over 19 carloads of containers.

One of two tank farms for storing liquid raw materials at new Zep plant in Atlanta is shown in photo at center, right.

Large modern storage warehouses (bottom, right photograph) for palletized drums of finished chemical specialty products.

chemical specialty products. Included are floor cleaning, waxing and floor treatment compounds; detergents; soaps; insecticides; disinfectants; and industrial chemicals. These are used for industrial, institutional and municipal maintenance and sanitation.

Mandle Zaban's son, Erwin, is executive vice-president of Zep. Soft-spoken and extremely able, he is taking over more of the burden carried by his father. With Ralph Friedman, energetic director of research and development, they make quite a trio. In fact, it's a team that often leaves its competition gasping and goggle-eyed.★★

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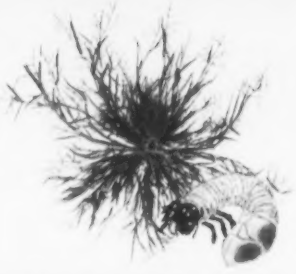

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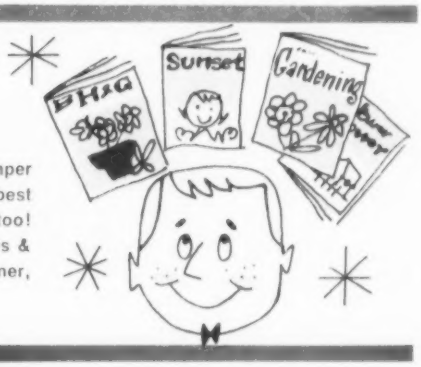

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Biological Insect Control

Current B. thuringiensis insect control program may serve as prototype for other novel insect toxicants of microbial origin

By James M. Merritt* and M. A. Manzelli
Merck & Company
Rahway, N. J.

BIOLOGICAL control is one of the oldest and most interesting systems of insect control. Some of the earliest work disclosed the tremendous impact of species competition in the insect world, predatory relationships, parasitism, and the existence of pathological micro-organisms in insect populations. Biblical references, nursery rhymes, and folk-lore all supplement the entomological history to create an image of biological control of insects as something inherently good for mankind, needing only the means for systematic application. This is an anomaly, in principle and in practice, but it is a fact. People react favorably to the idea of insects being reduced below damaging levels, or eliminated by almost any means so long as it is a natural occurrence in that part of the world belonging to the tiny beasties.

The objective of insect control is to upset the "balance of nature," or to preserve it, to the benefit of mankind by whatever means are most effective, and to whatever extent is profitable. The entomological profession and the chemical industry have just begun to work toward this objective by utilizing the micro-organisms that are pathogenic to insects. *Bacillus thuringiensis* is only one of several bacteria which have been isolated from insects. More will be found as systematic effort is applied. New concepts of microbiology and biochemistry are being developed and applied in this field. A strong foundation of knowledge is needed, particularly accurate taxonomy and physiology. There is an evident need to avoid mistakes that weaken the public's confidence. There is room for many errors, old and new, for the total knowledge is modest and progress will not always be easy—but the present level of public support has to be preserved because of its immense value to the future of the pesticide industry and the economy of the country.

To place the bacilli, and *Bacillus thuringiensis* in particular, in proper perspective we need to review the several systems of biological control of insects. There are predatory animals, vertebrate and invertebrate. Then there are parasitic animals. Finally there are pathogenic micro-organisms. These latter are further divided into protozoan, viral, fungal, and bacterial organisms. Each plays some part in biological control, but some members of the bacterial group are adaptable to production by present fermentation process techniques. This makes them available for mass application in insect control, as opposed to "colonization" in infested areas. *Bacillus thuringiensis* has been chosen because it can be mass-produced for use like any other insecticide, and it is not self-perpetuating.

B. thuringiensis is but one of many bacteria that are pathogenic to insects, but it is an outstanding member of the most useful group—the crystalliferous, sporagenic, entomogenous bacilli. The members of this group produce spores that are relatively stable, and along with the spores they produce crystals. One species was first described in 1905 and named in 1911, and four more emerged since 1951. The whole group has recently been reorganized and new nomenclature proposed by Drs. Angus and Heimpel of the Canadian Science Service. They described three varieties of *B. thuringiensis* and two of *B. entomocidus*. *B. finitumus* is a third species. This recent work is of great value to the development program, for commercial products must be based on dependable differences in the species and varieties to insure that a standardized spore material can be produced.

Mechanism of Control

B. thuringiensis was found in Mediterranean Flour Moth larvae fifty years ago. It produces sporangia in which the spores and crystals are to be found (Figure 1). These crystals have become

*Presented at 46th annual meeting, Chemical Specialties Manufacturers Association, Washington, D. C., Dec. 9, 1959.

one of the most challenging aspects of the present work. Ingested spores may germinate and produce typical vegetative rods or spores in the infested insects, but it has been clearly shown that this is not the basis for its striking effects on Lepidoptera larvae. Ingestion of the crystals causes paralysis of the muscular system that moves the food from the fore-gut into the mid-gut, and sometimes even causes total paralysis of the larvae.

These facts differ from the popular notion that the whole process of insect control with *B. thuringiensis* preparations is based on the effect of living spores, and is devoid of any chemical implications. The relationship of the crystals to insect control has been demonstrated using silkworm larvae. Viable spores, from which the crystals had been removed, were tested and found to produce no effect. Conversely, the extracted crystals gave the usual effect. This has since been confirmed with spore preparations sterilized to eliminate all viable spores. Therefor it appears that in most cases we are concerned primarily with the crystalline chemical material rather than the spores themselves. This has famous parallels in penicillin, streptomycin, and a host of other "fermentation process" chemicals. Micro-organisms can produce some elaborate chemicals, often at low cost, and that is of course the important contribution of the fermentation process industry.

Actually there is a great gray area in insect control that may be due to "bacteremia"—the presence of massive quantities of bacteria, which is known to be critical in animal physiology, even though the species may be non-pathogenic and cause no damage to the tissues. There are insects that are apparently immune to low concentrations but which succumb slowly after massive treatment with spore preparations: — flies are an example. Such insects may prove to be unaffected when treated with sterilized spore material, but no such experiments have been reported as yet. However, it is now apparent that one way to allay the fears of contamination with or mutation to organisms dangerous to man or animals is to sterilize the whole mass. This could be done, leaving the crystals in the sporangia — which are neat little sub-micron packages. Parallel developmental work with the viable spore products is logical, for they can be checked to exclude dangerous bacteria, or they might be formulated with bactericides that will function as the spores germinate.

Crystal/Spore Ratio Key

The ratio of crystals to spores is clearly one of the keys to profitable commercial production. While at first the highest spore count was expected to produce the best results, we now seek a proportionately high crystal count. 64 trillion spores per pound were considered good in 1958, but now the standards are much higher, and the crystal count generally parallels the spore count. Toward the close of the season, several experimental lots had achieved a six-fold level of improvement in efficacy as a result of improved production techniques. In addition, to more or less clinch the commercial possibility, if all this can be produced on a large scale and formulated without loss of effect, certain strains have shown a much higher unit toxicity according to research work that will be published elsewhere. Certainly the microbiologists have done outstanding work, and we shall turn now to the field experiments that have been reported.

Reports are confused by the variability of the spore/crystal ratios, the concentration ranges that are reported as billions of spores per gram, and finally the formulation and application techniques. All this is not confusing when viewed from within the program, and we shall try to clarify the fundamental points.

B. thuringiensis is not a cure-all. It works well on many if not all Lepidoptera larvae, the chewing worms, like tobacco hornworm and cabbageworms. These worms stop feeding and drop off the plants. They apparently do not even recover from paralyzing but initially sub-lethal doses of the spore/crystal combination. It is a stomach poison in that it has to be ingested by the insect. At least until we have better knowledge of the distribution and adherence of the dusts and sprays, control appears to be dependent on getting an effective coverage of the plants. Any effect on other insects of such sprays and dusts is generally at much, much higher rates of application, and of a different type.

A great mass of data has been collected to support these conclusions. For example, the highest available levels of spore/crystal concentration gave superlative control of tobacco budworm and cabbage looper when dusted on shade-grown tobacco. This showed that the protective deposit could be fully as effective as the best chemical insecticides in preventing feeding. And to prove that it was there, and specific against Lepidoptera, the aphids built up steadily except where the dust was mixed with parathion. A nice dosage-response curve developed, and laid against the other reports, it is evident that the effect is poor at low spore/crystal concentrations and progressively better as concentrations increase and formulations and application methods improve.

Commercially useful results have been reported against alfalfa caterpillar, cabbageworms, loopers on tobacco, cotton and cole crops, sod webworm, cotton leaf perforator, and artichoke plume moth. These are only examples, but they show a place for *B. thuringiensis* on leafy vegetables, turf and forage crops, also cotton and shade and forest trees if production economics develop as they seem inclined. Since there is no evidence of chemical toxicity to humans or animals,

the home garden and lawn potential is evident, though largely unexplored at this stage. This is not a broad-spectrum insecticide—not "all-purpose"—but at fairly high crystal concentrations it should protect against most of the leaf-feeding "worms," and some of those that hatch from eggs on foliage and move on to bore into the plant.

Commercial Potentials

Appraisal of the *B. thuringiensis* program at this stage requires consideration of the practical future for the spore preparations concerned. They are insecticidal, and production economics are potentially sound. They exemplify the new concept of selecting insecticides to fit in a controlled or managed ecological system.

We are straining the knowledge of chemistry to identify the active substance and standardize its production. We are depending on very recent knowledge in insect physiology in applying its mode of action to crop protection schedules. These elements have to be clearly known and integrated into pharmacological knowledge and regulatory practice—hence they are important to the commercialization of the products.

The chemistry of the insecticidal crystals or toxins in *B. thuringiensis* spore preparations have to be identified, and put through the chronic toxicity tests that exist or may be developed. The toxins fall into the polypeptide series which of themselves are challengign problems in biochemistry. Safety to humans has been reported, and has been demonstrated by limited tests. However, the laws and regulations of this and other countries call for a structure of prerequisite toxicological knowledge which makes this area of development very exacting. This is true whether we depend on viable spores or sterilized spore preparations.

However, those responsible for producing, distributing, using, or regulating *B. thuringiensis*, have at their disposal a great and growing fund of valuable basic knowledge. It is based on the interest and support that has been given to research in general—public funds spent for pains-taking studies that were "fundamental." Extending back almost to the beginning of entomology as a science, the work has multiplied in the last decade as specialists in insect pathology and micro-biology have applied productive skills.

The fact that so much knowledge on microbial insect control is already in the public domain is significant. Microbial insecticides are not going to yield the "composition of matter" developments that traditionally offer the most productive opportunities for private research investments in this country. The probability of patentable new compounds is further reduced to the extent that these may prove to be "natural phenomena." Hence the relatively large research effort that has been supported by public funds will have to continue, in order to originate the knowledge upon which industry can base production.

Production Research

Production research is a different proposition. Original knowledge in production and refinement offers attractive opportunities to private capital. Since we are dealing with a world-wide, long-range, and apparently basic area of scientific progress, there is reason to believe that process research will be generally productive and profitable to the producing and supplying industries.

Effective cooperation and coordination between public and private funds and continued efforts in research and development are required. We have a demonstrably important potential source of new insecticides, an industry adaptable to the need for specialized production, and fundamental knowledge that is primarily in the public domain.

There is a definite need for more fundamental and applied research before we can be assured of long term profits to agriculture and industry. The Agricultural Experiment Station system is best equipped to deal properly with the substantial entomological and ecological investigations which yield use information. The pharmacology and toxicology needed in the public interest is a definite opportunity for creative Federal research as well as regulation. Finally, there must be included the kind of industrial research that rewards both stockholders and customers, in this case primarily production and chemical research.

Such teamwork of public and private agencies would certainly further the *B. thuringiensis* program which may serve as a prototype for the eventual emergence of several good microbial insecticides to supplement and improve our current means of pest control.★★

—★—

Witco Assigns Three

Three assignments in the organic chemicals division of Witco Chemical Co., New York, were announced last month by Max Minnig, president. Harold B. Seligman has been named vice-president and general manager; Jerome Harrison is vice-president and director of marketing; and Stanley D. Shaw has been appointed midwestern sales manager. Mr. Seligman was formerly financial and administrative vice-president and has been with the company since 1931. Mr. Harrison joined Witco in 1925, served most recently as vice-president of midwestern sales for the organics division. Mr. Shaw, who was assistant midwestern sales manager, went with the company in 1941.

Witco recently announced the election of Cuthbert C. Hallett as a director. Mr. Hallett is managing director of Witco Chemical Co., Ltd., an English subsidiary. Robert Shacklady has been elected joint managing director of the subsidiary.

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Effect of propellants on

Plastic Aerosol Valve Components

By James A. Brown*
General Chemical Division
Allied Chemical Corp.
New York

THE use of plastics as valve components for aerosol containers of various propellants has led to many questions concerning the effect, if any, upon these plastics. As the use of plastics for aerosol containers increases, the need for data concerning these effects will become more pressing. In this study, an attempt was made to determine some physical changes that occur in various plastics after contact with fluorinated hydrocarbons for prolonged periods of time. The physical changes of particular interest were dimension and weight changes. Physical changes involving strength or electrical characteristics are outside the scope of this work.

Plastics selected are representative of different types of polymers. The samples upon which these tests were made were, for the most part, purchased through normal commercial channels. For this reason, little information was available concerning the amounts and types of plasticizers or fillers used in their manufacture. The fluorinated hydrocarbons that were used as solvents for these tests were propellants 11, 12, 21, 112, 113 and 114a. Tests were also run using methylene chloride so that comparisons could be made with a representative chlorinated hydrocarbon.

The method used to determine the swelling chracteristics of these plastics was essentially that of ASTM method D543-52T. Two slight modifications to this procedure were found to be necessary. Test strips of the various plastics were prepared having the following dimensions: $\frac{7}{8} \times 3\ 7/16 \times \frac{1}{8}$ inches. The ASTM procedure suggests 3×1 inch strips. The dimensions of the samples were modified so that they could be accommodated by standard Fischer Porter aerosol compatibility tubes. The strip length was then increased to maintain the seven square inches of surface area specified by ASTM. The other modification involved the preconditioning of the sample strips. Facilities for maintaining constant humidity conditions for the 48-hour period prior to actual test were not available. However, during this interval the samples were at a temperature of approximately 25°C. and exposed to 30-50 per cent relative humidity.

The plastic test strips were measured and weighed prior to and immediately following the immersion period. The dimensional measurements were made to the nearest mil, using an Ames 0-4 micrometer. This instrument has divisions of 0.001 inch. Weighings

*Paper presented at 46th annual meeting, Chemical Specialties Manufacturers Ass'n, Washington, D. C., Dec. 9, 1959.

Table 1. Swelling Characteristics of Various Plastics in Propellant 11

Plastic	% Change width	% Change length	% Change thickness	% Change weight	Remarks
Cellulose nitrate	0.5	0.6	0.8	5.2	After 2 weeks, final weight 98% of original weight
Polyvinyl alcohol	0.7	0.3	0.8	0.4	Solvent has little effect
Polyvinyl chloride	0.2	0.0	0.7	11.5	After 2 weeks, final weight 110% of original weight
"Teflon" (tetrafluoroethylene)	0.0	0.0	1.5	1.4	After 2 weeks, wt. 100.5% of original and thickness 101.5% of original thickness.
Cellulose acetate	0.0	0.4	0.0	4.9	After 2 weeks, final weight 98.5% of original weight
Polyethylene	6.1	6.7	7.6	32.4	After 2 weeks, dimensions normal. Wt. 101% of original weight
"Genetron VK"	2.4	0.8	15.0	11.6	After 2 weeks, weight and dimensions stayed the same
"Bakelite" (phenolic)	0.0	0.0	0.0	0.0	Solvent has no effect
"Zytel 101" (nylon 66)	0.0	0.0	0.0	0.0	Solvent has no effect
"Plexiglas" (methacrylate)	0.0	0.0	0.0	0.0	Solvent has no effect
Polystyrene	—	—	—	—	Sample completely disintegrated
Saran (polyvinylidene chloride)	—0.3	—0.2	0.0	0.2	Solvent has little effect
"Plaskon 8200" (nylon 6)	0.0	0.0	0.0	0.0	Solvent has no effect

of the sample were made on a standard laboratory analytical balance with an accuracy of approximately 0.2 mg. After initial measurements had been noted, the plastic test pieces were placed in small cylindrical jars measuring approximately five inches in length and one inch in diameter. The appropriate propellant was then added and the bottle capped. Propellants having a vapor pressure in excess of one atmosphere at ambient temperature were run in 3-oz. Fischer Porter "Pyrex" compatibility tubes equipped with a standard aerosol valve. The bottles and tubes were then stored for a period of seven days at 23-25°C.

At the end of this time the samples were taken out of the solvent, wiped dry with a clean cloth, and immediately weighed and measured. After approximately two weeks, additional measurements were made on those samples which showed changes in excess of one per cent of the original values. This made it possible to determine whether certain plastics exhibited a permanent deformation or weight change.

The results of these tests in terms of the percentage change in weight and dimensions will be found in Tables I–VII.

In general, it was observed that "Bakelite", nylon 6, nylon 66, "saran" and "Teflon" were only slightly affected by all of these solvents. With the exception of propellant 114a, polyethylene

Table II. Swelling Characteristics of Various Plastics in a Mixture of 90 Per Cent Propellant 112/112a and 10 Per cent Heptane

Plastic	% Change width	% Change length	% Change thickness	% Change weight	Remarks
Cellulose nitrate	—0.3	—0.2	—0.8	1.7	After 2 weeks, final weight 99.9% of original weight
Polyvinyl alcohol	—2.2	0.0	—0.8	0.1	After 2 weeks, final width 99.5% of original width
Polyvinyl chloride	0.0	0.0	0.0	0.0	Solvent has no effect
"Teflon" (tetrafluoroethylene)	0.0	0.0	0.0	0.2	Solvent has little effect
Cellulose acetate	—0.1	0.1	0.0	1.4	After 2 weeks, weight returned to normal
Polyethylene	5.0	5.2	5.1	25.2	After 2 weeks, weight 104% of original weight
"Genetron VK"	0.6	0.0	3.4	3.5	After 2 weeks, weight 102.5% of original and width 102.5% of original
"Bakelite" (phenolic)	—0.7	—0.1	0.0	0.0	Solvent has little effect
"Zytel 101" (nylon 66)	0.0	0.1	0.0	0.0	Solvent has no effect
"Plexiglas" (methyl methacrylate)	0.0	0.1	0.9	0.0	Solvent has little effect
Polystyrene	—	—	—	—	Sample completely disintegrated
Saran (polyvinylidene chloride)	—0.3	—0.2	—1.7	0.0	After 2 weeks thickness returned to original dimension
"Plaskon 8200" (nylon 6)	0.0	0.0	0.0	0.4	Solvent has little effect

Table III. Swelling Characteristics of Various Plastics in Propellant 113

Plastic	% Change width	% Change length	% Change thickness	% Change weight	Remarks
Cellulose nitrate	—0.4	0.0	0.0	1.7	After 2 weeks, final weight 99.5% of original weight
Polyvinyl alcohol	0.0	—0.1	0.8	0.0	Solvent has little effect
Polyvinyl chloride	0.6	0.0	0.8	0.0	Solvent has little effect
"Teflon" (tetrafluoroethylene)	—0.6	0.0	1.5	1.2	After 2 weeks, final weight 100.5% of original weight
Cellulose acetate	0.0	0.0	0.8	1.6	After 2 weeks, final weight 99.7% of original weight
Polyethylene	2.6	2.3	3.4	12.1	After 2 weeks, final weight 101% of original weight
"Genetron VK"	1.6	0.6	19.5	16.5	After 2 weeks, final weight 109% of original and thickness 112% of original
"Bakelite" (phenolic)	—0.3	—0.2	0.0	0.0	Solvent has little effect
"Zytel 101" (nylon 66)	—0.1	0.0	—0.8	0.0	Solvent has little effect
"Plexiglas" (methyl methacrylate)	0.0	—0.2	0.0	0.0	Solvent has little effect
Polystyrene	0.0	—0.2	0.0	0.0	Solvent has little effect
Saran (polyvinylidene chloride)	—0.1	—0.1	—0.8	0.0	Solvent has little effect
"Plaskon 8200" (nylon 6)	0.0	0.0	0.0	0.0	Solvent has no effect

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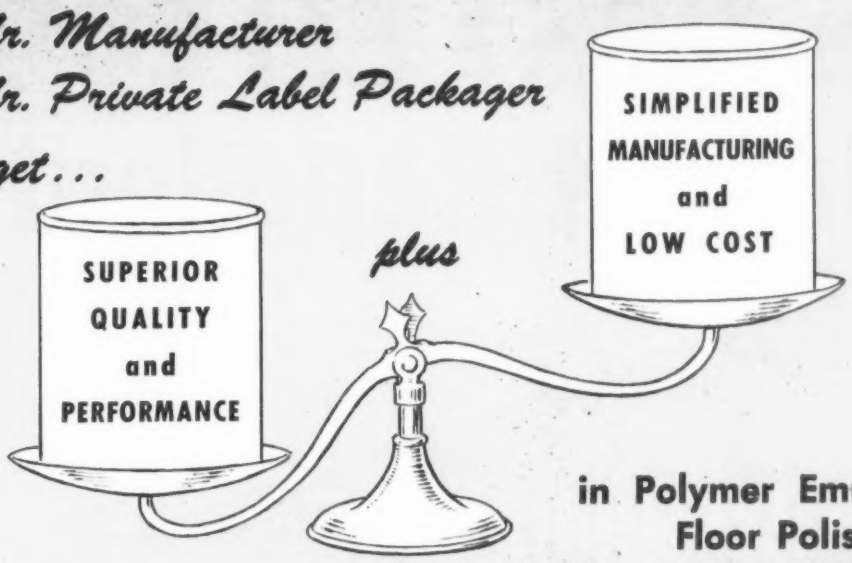

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Table IV. Swelling Characteristics of Various Plastics in Propellant 21

Plastic	% Change width	% Change length	% Change thickness	% Change weight	Remarks
Cellulose nitrate	—	—	—	—	Sample completely disintegrated
Polyvinyl alcohol	10.5	12.9	13.0	48.1	After 3 weeks, wt still 105% of orig and dimension approx. 102% of orig
Polyvinyl chloride	7.2	15.1	30.6	63.3	After 3 weeks, wt and dimensions still 110% of orig values
"Teflon" (tetrafluoroethylene)	0.0	0.1	0.7	1.5	Regained orig wt within 2 weeks
Cellulose acetate	—	—	—	—	Sample completely disintegrated
Polyethylene	4.6	4.5	2.5	19.5	Sample showed slight decrease from orig wt and dimension after 2 wks
"Genetron VK"	8.1	7.1	12.5	19.5	After 3 weeks, still 103% of orig wt
"Bakelite" (phenolic)	0.0	0.0	0.0	0.0	Solvent has no effect
"Zytel 101" (nylon 66)	0.0	0.0	0.0	0.6	Solvent has little effect
"Plexiglas" (methyl methacrylate)	—	—	—	—	Sample completely disintegrated
Polystyrene	—	—	—	—	Sample completely disintegrated
Saran (polyvinylidene chloride)	1.3	1.0	4.2	5.3	After 2 weeks, thickness and weight still 101% of original values
"Plaskon 8200" (nylon 6)	0.8	0.1	2.2	4.0	After 2 weeks, wt 102% of orig and thickness 101% of original

Table V. Swelling Characteristics of Various Plastics in Propellant 114a

Plastic	% Change width	% Change length	% Change thickness	% Change weight	Remarks
Cellulose nitrate	0.0	—0.1	0.0	0.3	Solvent has little effect
Polyvinyl alcohol	0.1	0.2	0.8	0.1	Solvent has little effect
Polyvinyl chloride	0.1	0.1	—0.8	0.0	Solvent has little effect
"Teflon" (tetrafluoroethylene)	0.2	—0.3	4.3	3.8	After 2 weeks, weight and thickness still 102% of original values
Cellulose acetate	—0.2	—0.1	—0.8	0.2	Solvent has little effect
Polyethylene	0.2	0.6	0.0	4.0	After 2 weeks, weight still 101% of original weight
"Genetron VK"	—0.2	0.0	3.2	3.6	After 2 weeks, weight and thickness still 102% of original values
"Bakelite" (phenolic)	—0.1	—0.2	—0.8	0.0	Solvent has little effect
"Zytel 101" (nylon 66)	—0.1	—0.2	0.0	0.4	Solvent has little effect
"Plexiglas" (methyl methacrylate)	—0.4	—0.2	—0.9	0.0	Solvent has little effect
Polystyrene	0.7	—0.2	—0.8	0.0	Solvent has little effect
Saran (polyvinylidene chloride)	0.0	0.0	—0.8	0.0	Solvent has no effect
"Plaskon 8200" (nylon 6)	0.1	—0.1	0.0	0.0	Solvent has no effect

showed a weight gain in excess of 10 per cent after immersion in all the solvents. Polystyrene broke down completely in all but the solvents containing the most fluorine in the molecule. The vinyl compounds were attacked considerably by the solvents containing hydrogen in the molecule.

In order to obtain some general ideas as to the effects of various atomic constituents of the molecule, a summation was made of all the percentage changes found for each solvent. If a sample completely broke down, the percentage change was taken to be 100. This gave us a rather arbitrary but indicative measure of the relative solvent power of each propellant, and also a possible clue as to how the atomic constituents of the solvent molecule affected its attack on the plastics tested. The index for each solvent is shown in Table VIII.

Table VIII. Swelling Index for Solvents

Propellent	Molecular Structure	Index
114a	CF_3-CCl_2F	32
113	CF_2Cl-$CFCl_2$	71
112	$CFCl_2$-$CFCl_2$	460
12	CCl_2F_2	94
11	CCl_3F	513
21	$CHCl_2F$	1901
Methylene Chloride	CH_2Cl_2	2215

Although it is apparent that there is some overlap in this index between the methane derivatives and the ethane derivatives, if each group is examined separately, certain apparent and interesting relationships are noted. In the methane derivatives the following progression is apparent:

CH_2Cl_2>Propellant 21>

(*Turn to Page 206*)

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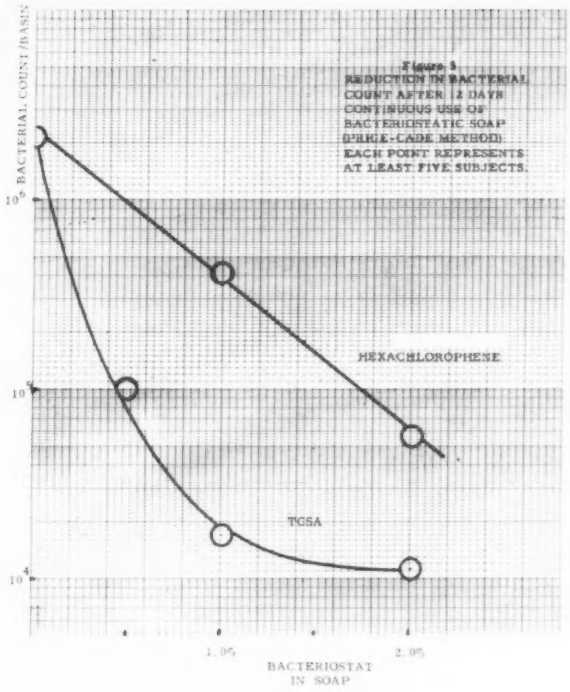

Figure 5
REDUCTION IN BACTERIAL COUNT AFTER 12 DAYS CONTINUOUS USE OF BACTERIOSTATIC SOAP (PRICE-CAIDE METHOD) EACH POINT REPRESENTS AT LEAST FIVE SUBJECTS.

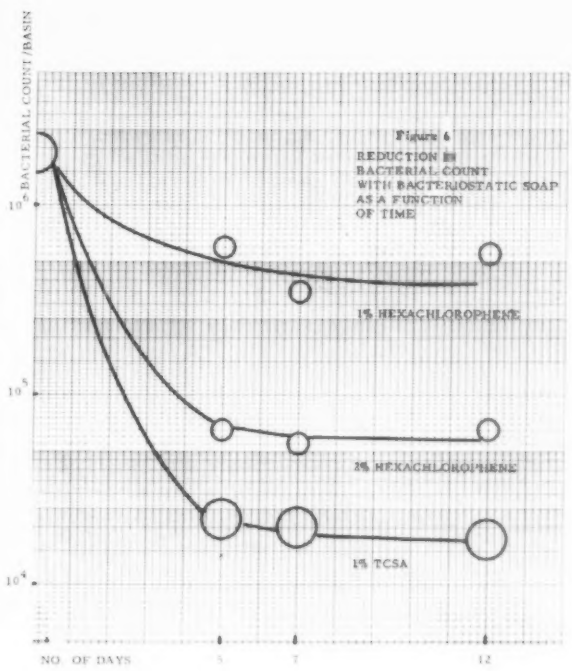

Figure 6
REDUCTION IN BACTERIAL COUNT WITH BACTERIOSTATIC SOAP AS A FUNCTION OF TIME

Unique Bacteriostat

(*From Page* 54)

lated in low pH synthetic formulations, TCSA shows no significant change in activity in several formulations of this type tested.

(*To be Concluded*)

Household Cleansers

(*From Page* 50)

washed and all organic matter removed. They are satisfactory if the dishes are held in the rinse water long enough and the water is discarded after its germicidal activity has fallen below a safe level. For example, McCulloch recommends at least two minute immersion of thoroughly cleaned plates in a solution containing at least 50 ppm of available chlorine. He points out, however, that alkalinization of the chlorine solution results in much slower action so that two minutes will not be sufficient and also that the presence of any organic matter leads to rapid deterioration of the effectiveness of the solution.

With this brief background of the nature of the problem, and what approaches are being used to solve it in hospitals and restaurants, we shall try to formulate a reasonable approach to cleaning in the home, which means removal of both visible dirt and invisible bacterial contamination. We are not considering here a situation in which a member of the household is ill or convalescing at home. This calls for special precautions of the kind taken in hospitals. We are concerned rather with maintaining a level of cleanliness in the home which is necessary for healthful living under normal day-to-day conditions. Here the primary job is removal of visible dirt. If a surface is clean and dry, it will not support the rapid bacterial growth that could constitute a health hazard. Thus, the test methods we discussed earlier prove to be the most important ones! A limited number of screening tests which cover the range of surfaces, of soils and of washing conditions expected in the home; follow-up of these laboratory tests with an actual consumer evaluation in which the uncontrollable variables are properly randomized and the results carefully analyzed — these methods will lead to the development of new products which will contribute materially to cleanliness in the home.

(*To be Concluded*)

—★—

Wyandotte Transfers Two

Richard E. Gromacki and John Arble were transferred last month from the research division of Wyandotte Chemicals Corp., Wyandotte, Mich., to the new products sales department, of the Michigan Alkali Division.

Mr. Gromacki, who has been with the company for more than eight years, was named assistant manager for urethanes. He has had experience in the development of many of Wyandotte's products, such as the polyethers, now used in polyurethane foam manufacture, and also has served as an application consultant to many industries.

With Wyandotte since 1947, Mr. Arble has been appointed technical representative for the new products department. He has served in the organic research department and the development group.

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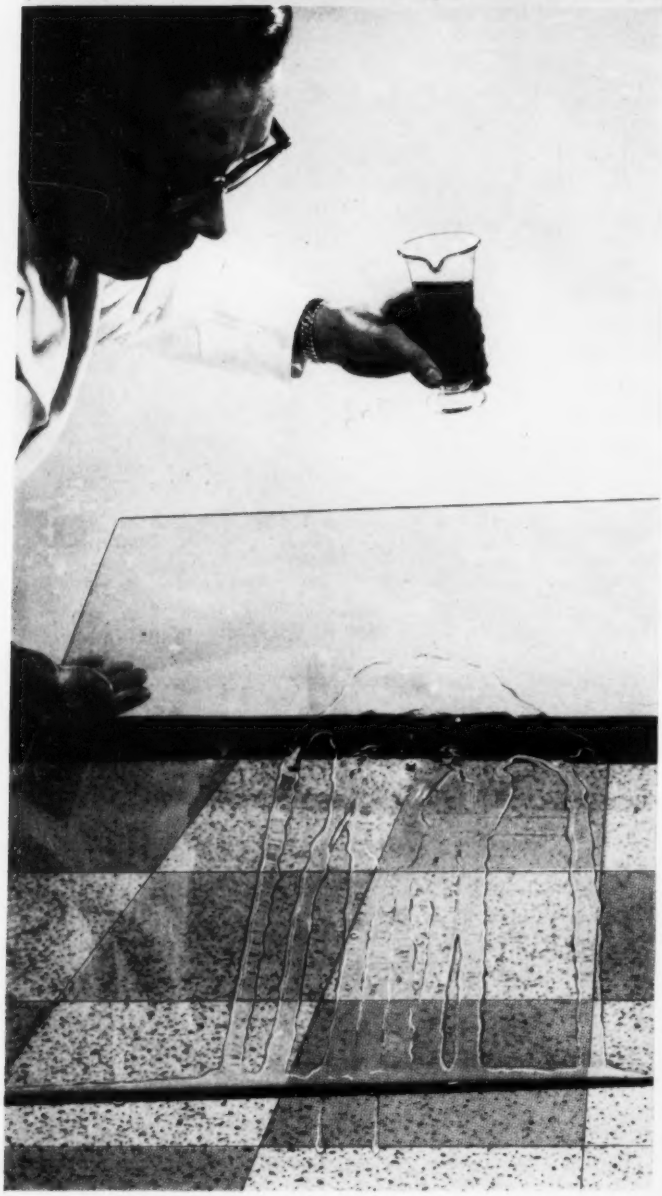

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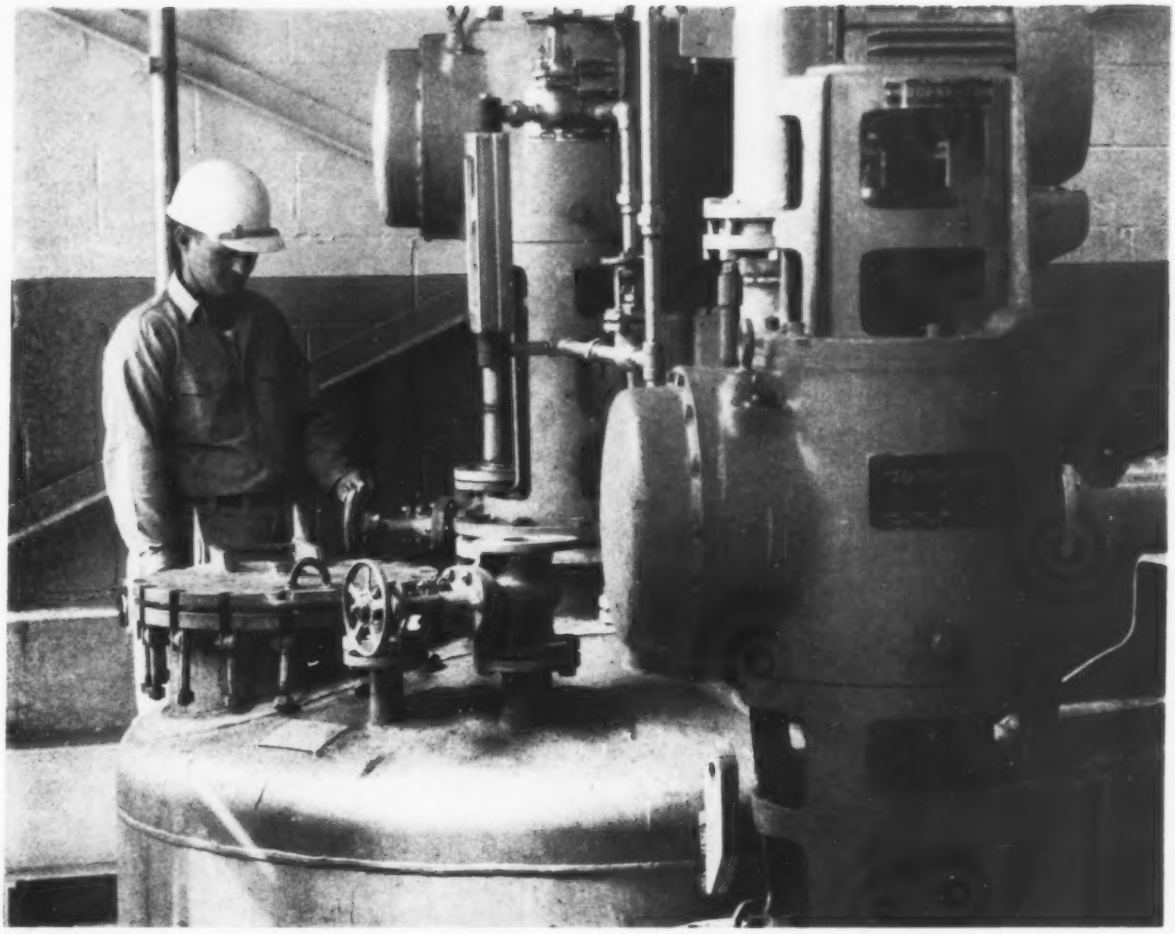

Acrylic emulsions and solutions are finding their way into floor care products in increasing numbers. In photo workman charges ingredients into stainless steel reactor at new acrylic plant of Catalin Corp. of America, at Fords, N. J.

What's Ahead for Floor Waxes?

By J. Vernon Steinle, Ph.D.
Research and Development Vice-President
S. C. Johnson & Son, Inc.
Racine, Wisconsin

Part II

RECENTLY a completely new approach to the formulation of a glossy floor finish has been found. It led to the revelopment of the Johnson product, "Klear," which has become a star item in the Johnson line. Emulsion polymers, for some years used in water-base paints, not only provide the toughness and bright gloss so necessary to the success of a self-polishing wax but have the further and very important attribute of never turning yellow.

*Paper presented during 46th annual meeting, Chemical Specialties Manufacturers Assn., Washington, D. C., Dec. 8, 1959.

We are all aware of the yellowing problem with the older formulations. The housewife applied coat after coat of wax on the floor and, as a result, in the areas of little traffic – corners, near the walls, under furniture–yellowing developed, much to her dismay.

The problem of yellowing became worse as light shades in resiliant flooring increased in popularity–white vinyls being the ultimate. "Klear" was the answer.

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waxes are formulated primarily from styrene, vinyl and acrylic monomers, which produce the desired gloss properties. These emulsion polymers can be simple polymers, or mixed polymers of simple basic monomers or maybe more complex copolymers containing larger molecules such as shellac, for example. It is in the synthesis of these emulsion polymers that the more complex scientific principles must now take their place. Not only is complex organic synthesis involved but physical chemistry as well.

In order to predict the properties of the finished polymer, the physical properties of the monomers and other molecular components of the polymer must be carefully studied in order that the proper ingredients may be selected to produce the maximum desired results in the finished polymer. Since gloss plays such an important role in the finished product, the optical properties of these monomers are extremely important. In the finished polymer, particle size and particle size distribution, as determined through the use of the ultracentrifuge and other instrumentation, are important in the selection of the ultimate polymer recipe. The coalescence of the polymer particles as studied with the electron microscope plays an important role in the film formation and the film properties. Elasticity and sheer strength of the resultant film bear a direct relationship to the wearing properties of the floor wax.

Important Properties

It may be well at this time to point out the important characteristics of a self-polishing wax which must be considered in the formulation of the product and studied from a physical point of view.

The first and most important characteristic is the initial gloss of the film after the product has been applied and dried. It is not only the intensity of this gloss that is important but also its uniformity and therefore the application characteristics of the wax must be considered. Such gloss characteristics can be measured by reflectometers or glossmeters. In practice gloss is best evaluated by the human eye alone. To date, floor waxes have never been made too glossy for the consumer.

Gloss retention, the real measuring stick for the wearability of floor wax, is the next important characteristic. Gloss is observed at intervals during which the floor wax has been subjected to wear by foot traffic and maintained by mopping with soap and water. Specially designed mobile floor panels on which a variety of floor coverings can be applied are used to measure wear of floor waxes. The film will deteriorate through abrasion of the hard film, by movement and removal of a soft film caused by scuffing, and finally by the removal of the film by mopping with soap and water. This wearing characteristic again can best be judged by human observation noting comparative reduction in gloss and general appearance of the waxed surface. The effect of water on the film is of great importance, not only from the standpoint of removal but also in regard to spotting with spilled water or soap and water spillage. It is, therefore, desirable to formulate a product which will lay down a film that will show no water or soap and water spotting. But here we run into conflict with another property which is of a high degree of importance. I refer to the ease of removal of the film from the floor.

Since floor waxes are maintenance materials and not permanent finishes it is desirable and necessary that they be removed at intervals so as not to build up an excessive coating from subsequent applications. Such excessive coatings can produce undesirable and unsightly conditions. Consequently, a balance must be achieved between water spotting and ease of removal.

I have cited but a few of the more important characteristics which must be taken into consideration in synthesizing the emulsion polymers and formulating the finished floor wax.

The reader may now be raising the question in his mind: "What about the slipperiness of wax?" "Do not your investigations and your formulations take this property into consideration?" Basically the answer is, yes. However, although it is a fact that floor waxes are not slippery, much work has been done to erase the idea that they are. For many years the National Bureau of Standards, working with the National Safety Council and members of the floor wax industry, has been attempting to establish a method for measuring slipperiness of floors. As a matter of fact, the coefficient of friction of wax films are, in general, higher than the coefficient of friction of the floor surfacing materials to which they are applied. However, coefficients of friction and slipperiness are not synonymous. Many other characteristics and properties are involved in slipping, not the least of which is psychology.

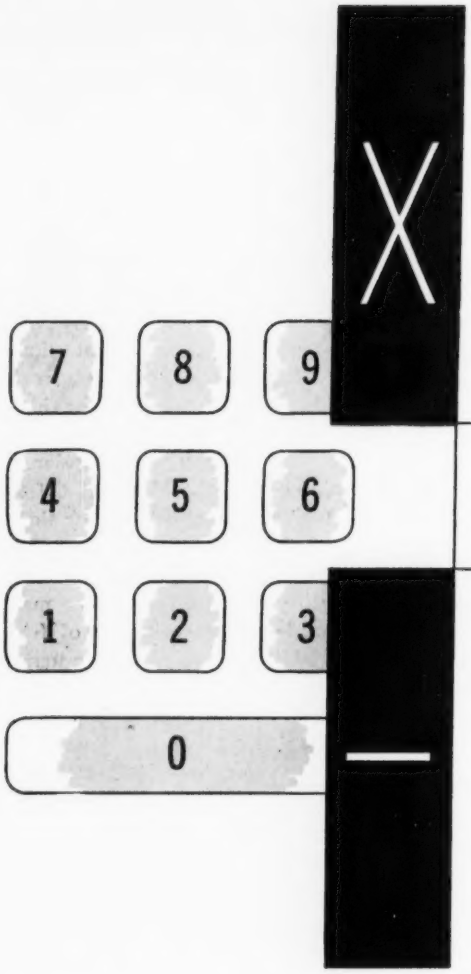
I have tried to give you a picture of what has been involved in the evolution of floor waxes whose annual sales today in the United States amounts to over 100 million dollars at retail prices. I have, personally, been able to partake in this evolution and the growth of the industry. But evolution never ends.

What do I see in the future?

Future Outlook

In the not too distant future I see the synthesis of a single molecular structure in the form of an emulsion polymer which will produce a higher gloss than the present floor waxes, which will resist wear under normal traffic for several months, which can be rebuffed to its initial gloss, which will be absolutely impervious to spotting by water or soap and

(Turn to Page 111)



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COOLING SYSTEM

(*From Page 74*)

to do for a leaky radiator was general knowledge, and everybody was happy until they finally had the radiator full of almost everything but water. Commercial products that contained less bulk and made a more permanent repair soon began to appear on the market and promptly saved the day.

There was no need for a method of testing then. These products either stopped the leak or they didn't. If they did, they sold; and the manufacturer prospered. If they didn't stop the leak, the manufacturer was soon out of business, it was just that simple in those days.

The picture is now quite different. Today a good stop-leak must stop cooling system leaks and keep them stopped under alternate pressure and atmospheric conditions. It must not cause foaming and be equally effective in various anti-freeze solutions and/or different types of water. Equally as important as being able to stop leaks effectively, it must not clog the small openings in present-day radiators or heater cores. It must not collect under the thermostat valve seat or in any of the mechanical parts of a thermostat or heater control so as to prevent them from closing tightly or open as intended. One of the desirable features of a good stop-leak is for the leak-stopping ingredients to remain in suspension for a considerable period of time. It is also essential that these small particles be of such a nature that they do not have a tendency to "stack or rope" and progressively clog any of the small functional openings in the heater or cooling system. It is this latter characteristic that caused considerable concern in our laboratory several years ago.

An early method of quick testing of stop-leaks was to mix the product with water in the recommended proportions and check its ability to stop various size small holes in a tin can. (Fig. 11) As pressure cooling systems became more abundant, these quick tests changed to closed containers and were subjected to a few pounds of pressure to determine how effective the stop-leak product was under pressure.

Unfortunately, this quick evaluation test was picked up and used as a sales tool inferring that the product sealing the holes fastest and holding under the highest pressure was the best stop-leak.

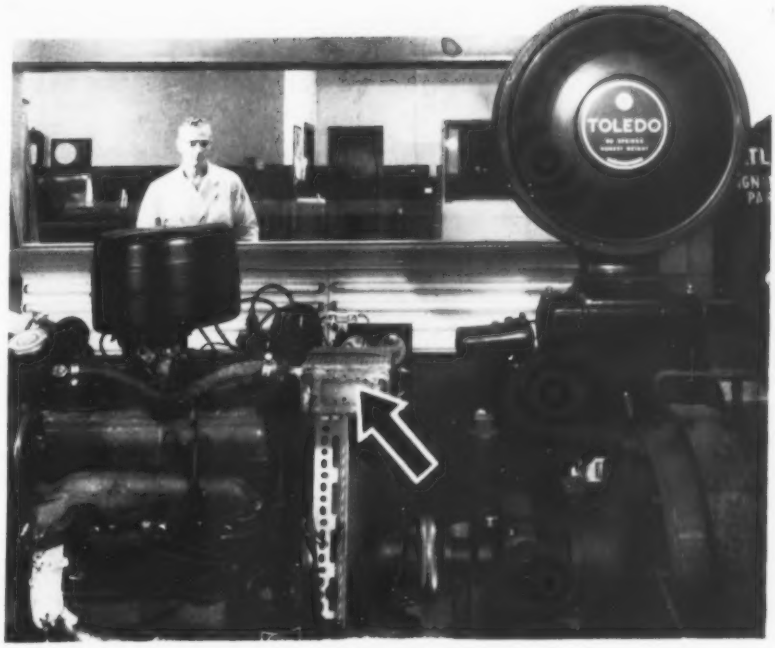
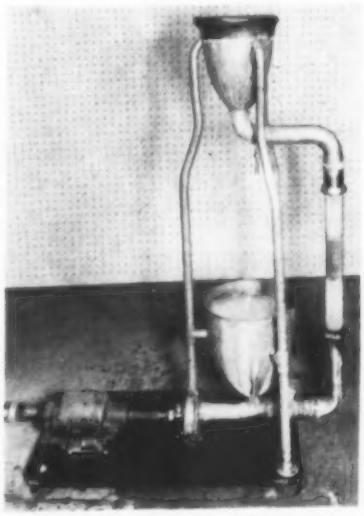


Figure 12

Figure 13



The manufacturer naturally wanted his product to equal or outdemonstrate other competitive products. There was nothing apparently very wrong about this until we and others started getting quite a few spotty complaints about our high temperature thermostats being defective. Testing showed there was nothing wrong so far as the thermostat operation was concerned. When we went into the field to check on some of these complaints, here is what we found: A customer would mention to the service station man that his heater was not giving off much heat this fall. The service station man would naturally recommend an inspection of the thermostat which usually resulted in installing a high temperature thermostat. Some days later the customer would tell the service station man that there must be something wrong with the new high temperature thermostat because it didn't improve the operation of his heater very much, if any. A thorough investigation showed the heater cores better than half clogged with a material of the same general appearance as the material in some of the radiator stop-leaks.

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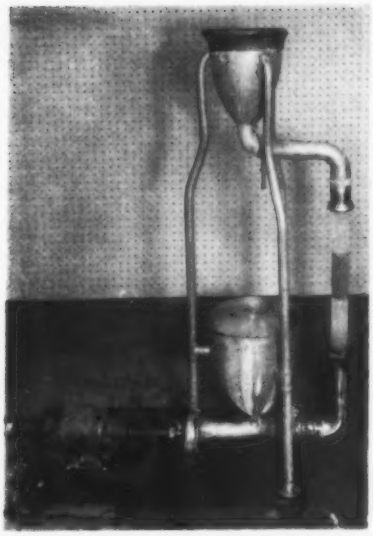
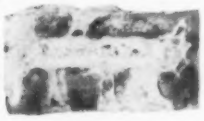
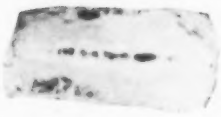
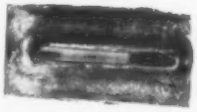


Figure 13. Machine pumps test solution up into top tank from which it then runs down through section of radiator tube placed in glass tube for observation of stacking.

Figure 14. Cross sections of radiator tubes. Top: Long coarse fibers stacked so as to clog radiator tube completely. Medium length fibers, shown in sectond photo from top, are crowned and stacked so as nearly to clog top of tube. Third photo fram top shows how some materials will stick to sides of tubes and cause build-up of deposits inside tube. In bottom photo, short, hard stop-leak ingredients neither stack, crown nor lodge to clog radiator tubes, and are effective in repairing leaks.







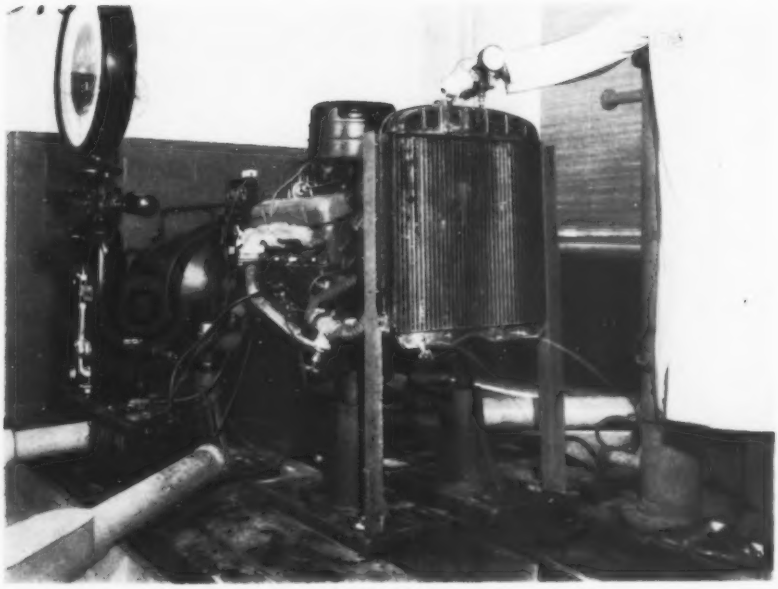


Figure 15

We found that car heater cores were being made with smaller size tubes. Our investigation also showed that while the trouble was not severe in the heater cores stacking and particle clogging was also taking place in some radiator tubes, in old coolers on industrial engines, and in thermostat valves.

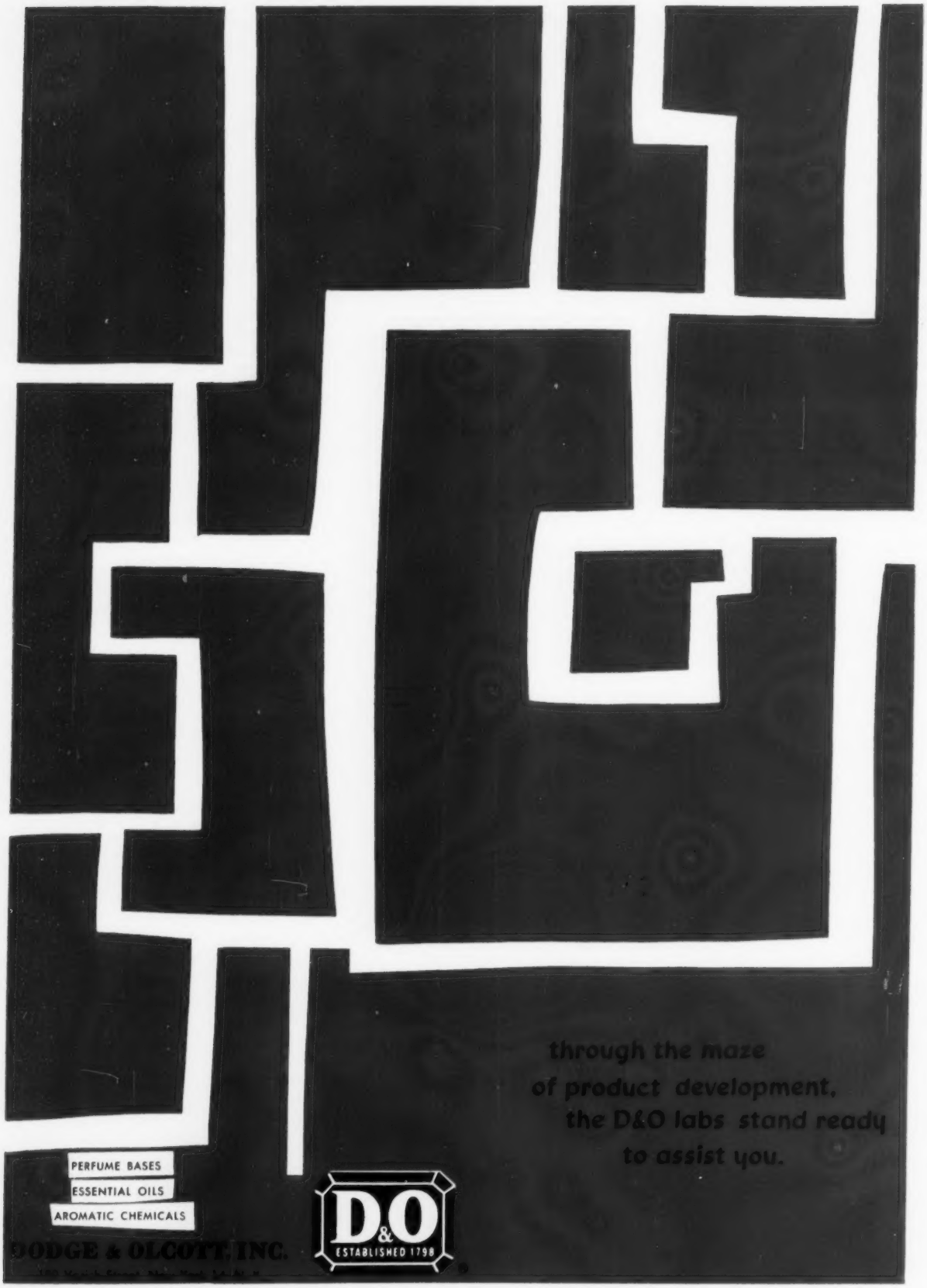
Figure 12 shows the laboratory set-up we first used to determine the clogging tendency of various radiator stop-leaks. A glass window installed in a conventional heater end tank gave us our first proof of what was taking place. Because of the way some fibers pile up progressively or crown over the end of the small flat tubes, we began to refer to this as the "stacking test."

It is quite time consuming and expensive to use such a dynamometer set -up for this kind of check, because of all the reverse flushing and removing of freeze-out plugs needed to clean the system between test runs.

In an effort to find a quicker way, we modified an old piece of bench test equipment that had been used for some other quick tests on radiator products. (Fig. 13) The idea was to devise a method that would accelerate any stacking or clogging tendency of a stop-leak. (Fig. 14) After checking a number of products both on this apparatus and in the dynamometer, we arrived at a rather satisfactory quick evaluation.

Realizing, however, the variables and limitations of this test, we continued to look for a better method. We found that we can use our simulator to observe a "stacking" tendency on ends of radiator tubes. (Fig. 2) We can also install our glass window equipped heater on this unit when desired. This appears to be a quick test and one that is even more factual than the dynamometer where there may be a carry-over of fibers from one product to another from hiding places in the engine block. This simulator unit can be quickly inspected and/or completely cleaned between each test.

Strange as it may seem, the last test now made on a stop-leak is for its ability to stop leaks effectively and to operate under pressure. (Fig. 15) We have been very successful in evaluating the leak stopping ability of a stop-leak by having four .015" holes drilled in the radiator tanks and four .020" holes drilled a few inches from these in the same tanks. Two of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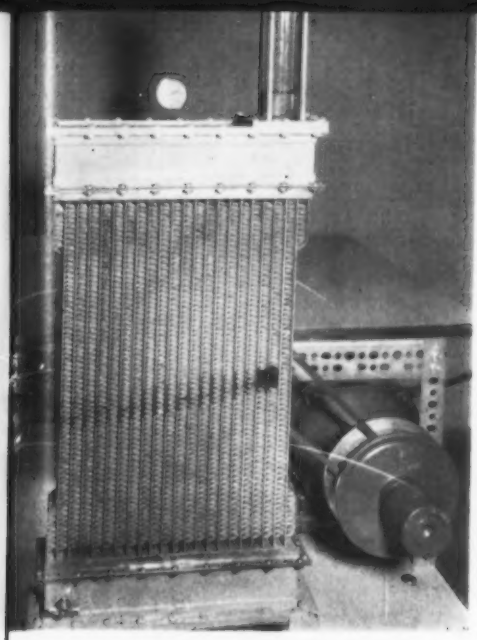


Figure 16

each of these holes are on a vertical plane and two are on a horizontal plane. The cooling system is filled with water, the recommended amount of a stop-leak is added, the pressure radiator cap is installed, and the engine is started. (Since almost all present cooling system leaks are smaller or of a seepage type, it is not necessary to use large holes to test a stop-leak.)

The engine is operated at 1,500 r.p.m. under a light load until the thermostat opens. A record is kept of how long it takes in time for each hole to stop leaking. The system is allowed to pressurize normally and operate for approximately one hour. The engine is then stopped and allowed to cool for several hours, at which time it is restarted and operated under load for a few hours during which observations are made with respect to dryness of the leak holes and for any "breakouts" of the leaks. The dynamometer is then allowed to stand idle for at least sixteen hours. At the end of this period we like to see the repair at each of the eight holes perfectly dry with no evidence of water beads. We have found, however, that some of the products that are proving to be satisfactory in the field may not show this freedom from droplets until after several days of intermittent usage.

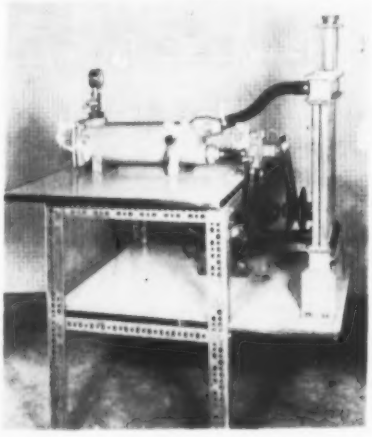
During these runouts on the dynamometer we are always on the alert for foaming and increase in operating temperature or any other objectionable characteristics.

By using the other half of radiator core with .015" and .020" holes drilled in side tubes and top tank (Fig. 16) we are also working this leak-stopping test into our simulator unit. At present we don't have enough experience and data to know for sure whether it will be as effective in this testing as the dynamometer. All we can say is that it shows a lot of promise, is much easier to clean between tests, and certainly does not represent as much investment as a dynamometer.

Our simulated system unit was carefully designed to approximate the general characteristics of a small cooling system (about half size). (Fig. 7) It simulates all conditions encountered in present day cooling systems including tendency toward clogging, foaming, and conventional metal couples.

The radiator core is one half of a 1959 "Chevrolet" passenger car radiator. The bolts on top and bottom tank are 1/16" brass with suitable reinforcements for the bolt in glass observation windows. The water pump belongs to a six-cylinder "Chevrolet." The block section is a cast iron heater shell, No. 120, made by Bell and Gossett Company, Morton Grove, Ill. for use on a furnace. We placed a divider inside this shell to make the water circulate through it lengthwise similar to a conventional engine block. It is also equipped with a high wattage electric heater, pressure gauge, temperature control, and temperature gauge. A variable speed drive on a one horsepower, 1,750 r.p.m. electric motor to drive the water pump permits us to check out foaming tendency at various speeds from 15 to 20 m.p.h. or to accelerate time conditions. This high speed may permit us to accelerate tendency toward stacking by stepping up the number of passes through the radiator core.

Figure 17



A few modifications are needed to make this unit a little more convenient; for example, an easier method than soldering is needed for fastening the heavy brass bases of the end tanks to the various radiator cores and some splash shields for better control of water when draining, etc. However, based on our experience so far, we have great hopes for further development and extended use of this unit. We shall try to add further refinements and to improve correlation between test results and actual use. We would appreciate hearing from anyone who has built a similar apparatus and added improvement or new uses.

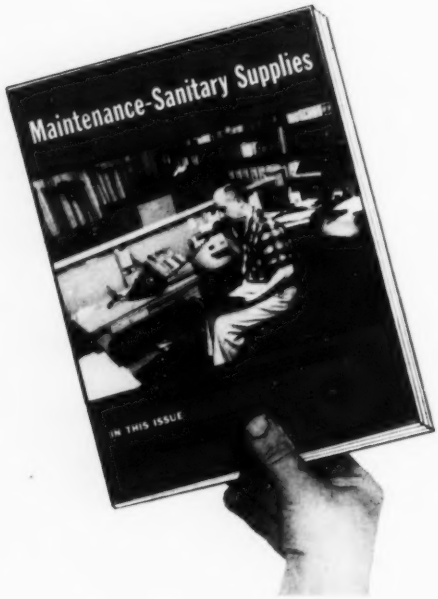
Summary

This study demonstrates the value of inspecting deposits in a cooling system before and after cleaning by observation through the thermostat opening in the block and by centrifuging of the cleaning solution before and after a test.

The advisability is shown of using an existing bench-type accelerated corrosion test, a tentative foaming test, and of observing compatibility for evaluation of rust inhibitors.

How large a hole it can stop and hold under pressure is not the most important criterion for evaluation of a modern stop-leak. In today's cooling systems it is essential that such a compound does not have a tendency to "stack" on the end of the tubes in the heater or

Annual Convention



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radiator and that it will seal small or seep-type leakages tightly and remain so under present-day pressures.

A first step has been described in the development of a much needed piece of test equipment that can be further refined and used by industry to evaluate and improve cooling system additives.★★

Coconut Oil Outlook

(*From Page* 59)

I should like to close with a word about the FAO Group on Coconut and Coconut Products. The Group was set up in 1957 and is composed of 16 Governments, including the United States, who are closely interested in the future of copra production and trade. Real progress in most coconut producing countries will require considerable government help in research and extension, and in setting up supporting economic policies and technical programmes. In order that development may be undertaken with the best available knowledge of world supply-demand prospects, the Group is giving a good deal of its attention to the provision of statistics and economic intelligence, and to regular reviews of the situation. It also provides a regular forum for the exchange of views between importing and exporting countries on special problems, such as copra quality. I think it has already acted as an effective "pump primer" in getting more attention directed to technical and scientific advance. As a result, under the U.N. Technical Assistance Program, experts have been employed to map out the fields where scientific research is most urgently needed, to plan its coordination between countries, and to tackle the very difficult problem of methods of collecting agricultural statistics on coconut. The Coconut Group has been much aided in its work by representatives of industry and trade, both in national delegations, and

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through such bodies as the International Association of Seed Crushers and the National Institute of Oilseed Products. We hope that we shall continue to have the advantage of their experience in this work.★★

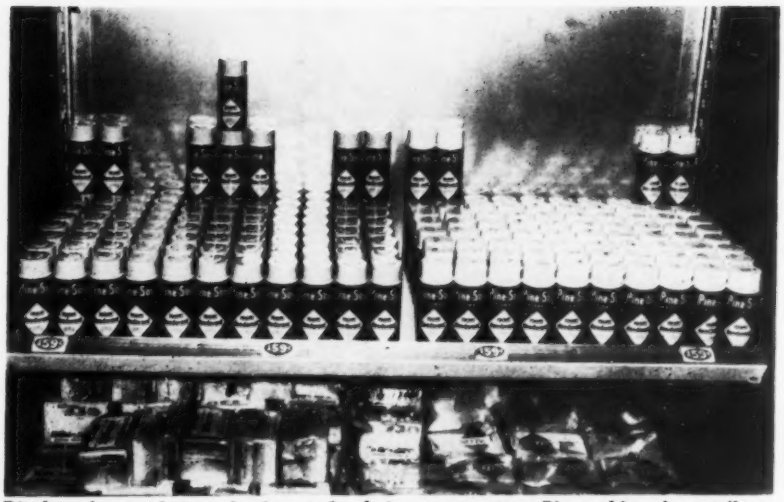
Aerosol Sales

(*From Page* 60)

seem to be sufficient to nominate them for Miss Supermarket of 1959. To maintain this happy state I would like to make a few suggestions:

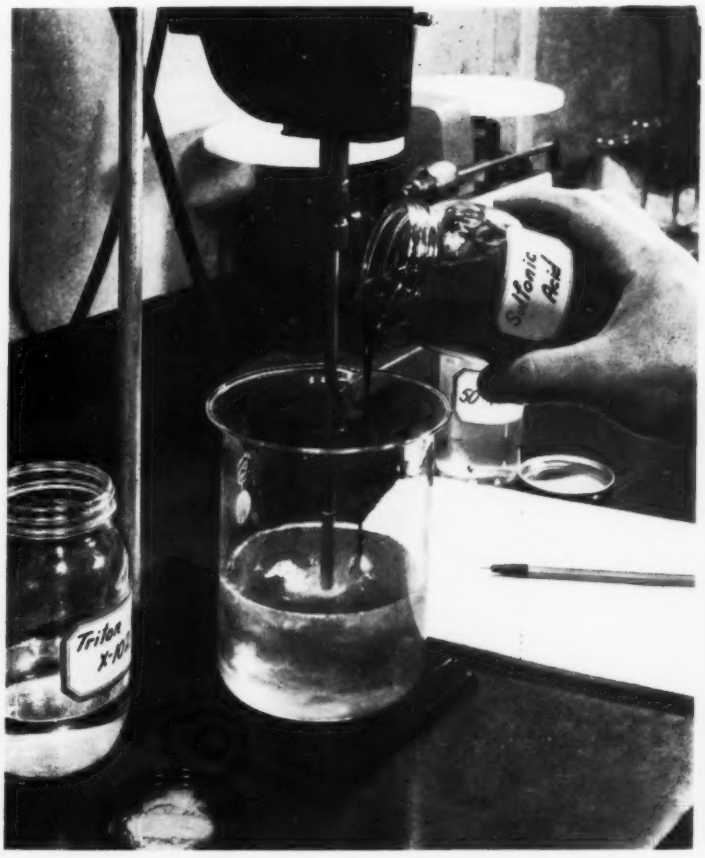
First—Always remember that quality is paramount. An inferior product will hurt all aerosol products. An inferior packaging job can result in loss of confidence in the aerosol package as a whole. Quality is the producer's responsibility. We look to him to fulfill that responsibility.

Second—We want to know more about the aerosol business. We believe that we know a little already. But by the same token we want the loaders to know our industry and to plan their policies, package designing and sales programs for the greatest amount of basic coordination. This type of co-operation will enable us to distribute aerosol products to consumers with a minimum amount of waste of time and effort. This is our mutual responsibility. This type of co-operation will also enable us to do business in a climate



Display of aerosol room deodorants in chain grocery store. Big problem for retailers and marketers, too, is trying to group pressure packages in one display.
Photo courtesy Dumas Milner Products Corp.

HERE'S ALL YOU NEED TO MAKE A **GOOD** LOW-COST LIQUID DETERGENT!



that will be conducive to the steady sales growth of aerosol products.

Last October, at the convention of the National Association of Food Chains, representatives of some of the nation's largest food processors called for inter-industry co-operation to avoid the costly blunders that result from poorly conceived sales programs. After all, if one wants medical advice one goes to the doctor. If one wants legal advice, he consults his attorney. In every phase of business one seeks help from specialists. Loaders should take full advantage of the help that grocery chains can and will give them in planning practical sales programs.

Third — Fillers and food chains have as greatest common objective the satisfaction of the consumer. Realization of this mutual responsibility makes it mandatory that they work as partners.

To what can we look forward in the coming years? There's a story that has gone the rounds in Washington about the taxi driver who took his fare past the National Archives over which are inscribed the words, "Past is Prologue." The passenger called this inscription to the attention of the taxi driver and inquired as to its meaning. The classic reply of the cab driver was, "Boss, it means you ain't seen nothin' yet."

This pretty well describes the next ten years for a couple of young, dynamic, growing industries; the supermarket business and the aerosol business. Certainly the supermarket industry realizes that it must maintain policies of strict efficiency, utmost service, competitive pricing, convenient locations, top quality and value, and an ever increasing variety to please the desires of the modern American family.

Aerosols are subject to many of the same requirements. Unquestionably loaders will have to prepare themselves to be extra efficient, provide the maximum of service to customers, keep competitive, offer top quality and value, and continue to manufacture and offer an ever increasing variety.

We may safely forecast that in the next decade relations between aerosol producers and food retailers will become ever more important as a growing proportion of the total aerosol output will be distributed through grocery chains.

What's Ahead?

(*From Page* 101)

water but which will be easily removable by the addition of a simple common chemical to the scrub water. All of the properties outlined will be built into a single molecule through the careful application of physical and organic chemistry in the synthesis of the molecule, through painstaking development of the final formula,

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and the development of processes for the production of these emulsion polymers and finished floor waxes in the factory. Such a product is not marketed today.

Apart from this, I might predict – although you might call it wishful predicting – that more products will be made in future years that will match the claims that are being made today.

Seriously, there can be no doubt that the trend in floor waxes is to synthetics—the polymers and so forth—but there is also much to be hoped for from our natural raw material—carnauba wax. Liquid wax with carnauba may well be the number one product for future development.★★

Low Foam Nonionics

(*From Page* 56)

cloud point of nonionics has been discussed and speculations offered on the mechanism of low foam above the cloud point. In particular, it has been suggested that the low foam above the cloud point is primarily a result of the slow rate at which nonionics above their cloud point can concentrate at freshly formed liquid-air interfaces.

The performance of these modified nonionics has been described in several applications including mechanical dishwashing, spray metal cleaning and textile wetting.

Acknowledgements

The authors gratefully acknowledge the synthesis support of W. Niederhauser, J. Rainey, E. Lane and F. Boettner during these studies. The technical assistance of L. Kelley, C. Meyer, G. Trebbi and R. Clark is also gratefully acknowledged.

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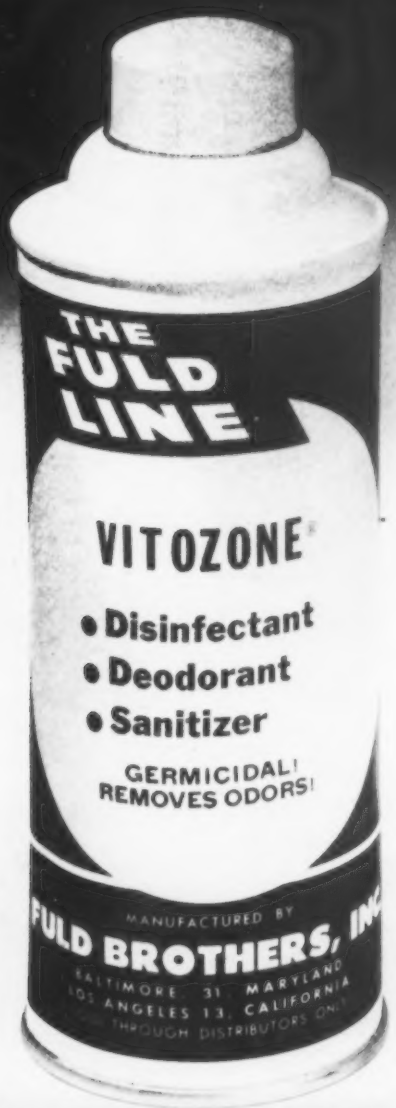
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From the selection of all raw materials used in manufacture to the final product inspection, Anchor Hocking employs literally hundreds of exacting controls, tests and checks daily. All this is done but for one reason—to provide you with uniform, high quality glass containers and closures that will give you high speed production and dependable protection for your products. Anchor Hocking Glass Corporation, Lancaster, Ohio.

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Dispense An Ocean Of Successful Aerosols

1. COMBINES THE DESIGN ADVANTAGES OF THE RISDON VALVE WITH THE FIRST AND FOREMOST MECHANICAL ATOMIZING ACTUATOR.

2. WIDE RANGE OF APPLICATION
Gives excellent performance on all 3-phase products including water-base formulations • Dispenses propellant emulsions or dispersions • Gives Super-spray performance on conventional 2-phase and ultra-low pressure products • Applied to Glass, Metal and Plastic Containers.

3. WIDER CONE, FINER, DRIER SPRAY CLOUD
Softer, more evenly diffused spray eliminates splattering.

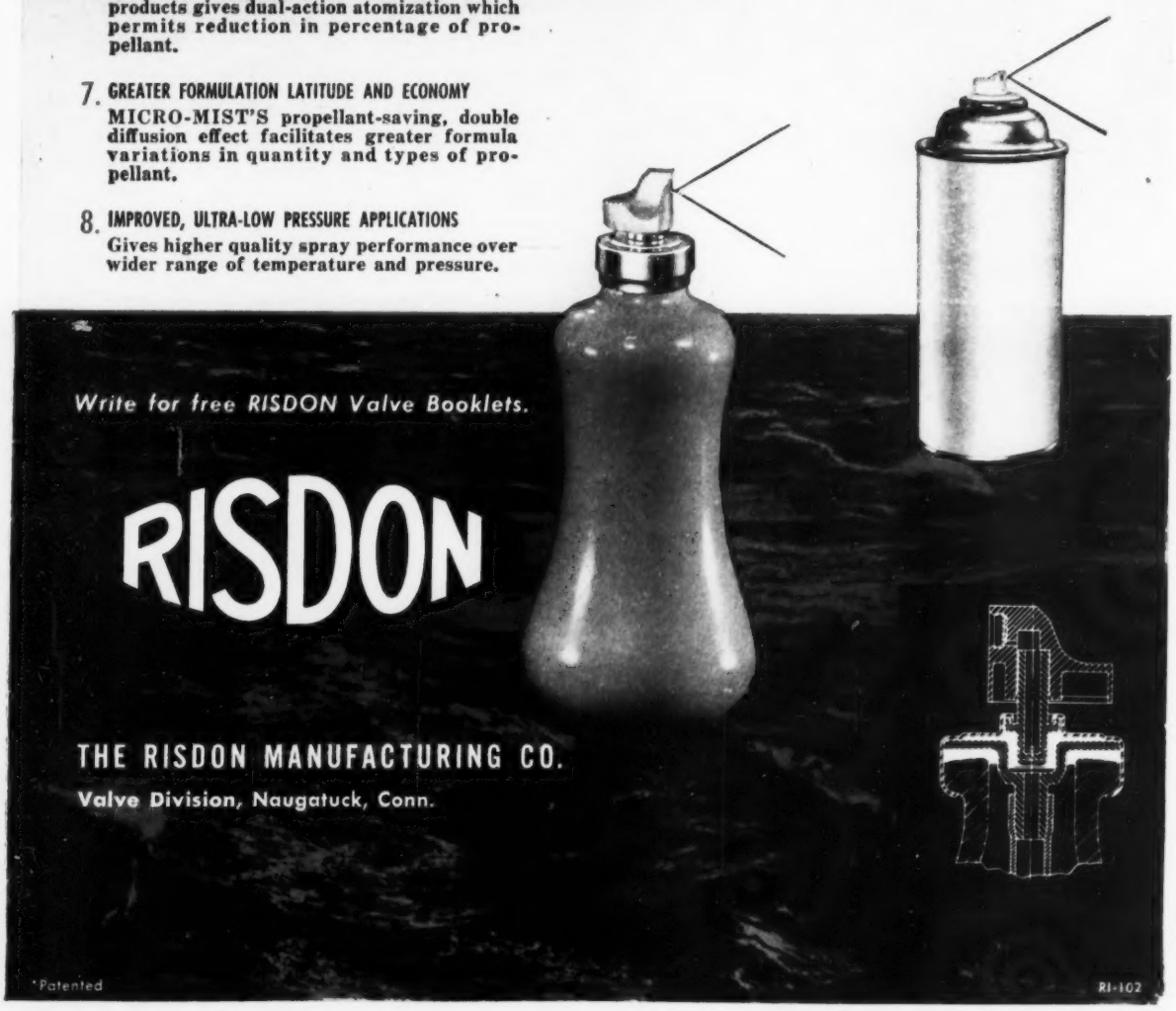
4. LONGER LASTING CONTENTS
Especially advantageous in expensive products such as medicinals and perfumes.

5. SPRAY CONE CLEARS CONTAINER
Eliminates messy accumulation on top of can containers.

6. IMPROVES PRODUCTS BY MINIMIZING DILUTION EFFECTS
Using MICRO-MIST valve on two-phase products gives dual-action atomization which permits reduction in percentage of propellant.

7. GREATER FORMULATION LATITUDE AND ECONOMY
MICRO-MIST'S propellant-saving, double diffusion effect facilitates greater formula variations in quantity and types of propellant.

8. IMPROVED, ULTRA-LOW PRESSURE APPLICATIONS
Gives higher quality spray performance over wider range of temperature and pressure.



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THE RISDON MANUFACTURING CO.
Valve Division, Naugatuck, Conn.

*Patented

RI-102

ALUMINUM CONTAINERS

By John Jackson*,
American Can Co.,
Barrington, Ill.

Aluminum can for pressure-packed products held aloft by operator at plant of American Can Co. Cans shown here are receiving base coat of enamel before label is applied by offset. Seamless cans, produced by Bradley-Sun Division of Canco, are formed by extrusion process. Aluminum cans are priced "competitively" with seamless tinplate, maker says.

THE use of aluminum as a can making material has long been considered and studied experimentally. Numerous references in the literature may be found going back to the beginning of the century. The factors which militated against the use of aluminum were the unfavorable economic comparison with tin plate, and aluminum's greater sensitivity to corrosion by many products within a closed can. Since World War II the greatly increased production capacity for aluminum in the United States (1) and interest in the use of domestically available materials as alternates for tin (2, 3) have given great impetus to the promotion of aluminum as a can making material in the United States.

The situation is somewhat different in Europe, where the price relationship between aluminum and tinplate is more favorable to aluminum than in the United States. Also, the relatively noncorrosive nature of the marine and vegetable products that have been packed and the methods of distribution which do not involve substantial pack carry-overs have minimized the service life requirements. Consequently, aluminum has been used in substantial quantities for can making in Europe for a number of years (4). The use of aluminum for the manufacture of aerosol cans in Europe is a relatively recent and rather spectacular development. This was covered by Aksel Taranger of Aluminum Union, Ltd. in a talk before the CSMA in 1957 (5).

Advantages

A number of the advantages of the extruded aluminum aerosol container may be listed as follows:

1. Seamless construction permits all-around lithography decoration, thus providing very attractive appearance.

2. The extrusion process permits embossing individual designs on the container shoulder and embossing a ring on the shoulder to facilitate attachment of a single wall, flush overcap.

3. Seamless construction provides high bursting strength, which is important for aerosol use.

4. Seamless construction facilitates the application of continuous internal protective coatings.

5. Freedom from external rusting is advantageous for products which are used in the bathroom or kitchen.

6. The containers are light in weight. The six ounce nominal capacity aluminum can weighs less than one ounce, in contrast to more than two ounces for comparable tinplate cans.

7. Impact extrusion is an economically attractive method of fabricating containers designed for aerosols.

Problems

In order to obtain these attractive features, a number of problems must be considered:

1. Aluminum is less corrosion resistant than tinplate for most products, and thus requires high quality protective coatings.

2. It is difficult to obtain adequate buckling and bursting strength in bottom ends made from a soft metal like aluminum, and thus thicker gauge stock and careful design are required.

3. Aluminum cans may be vulnerable to denting damage,

*Paper presented Dec. 9, 1959 during 46th annual meeting, Chemical Specialties Manufacturers Assn., Washington, D. C.

especially before pressurizing.

4. The basically more expensive raw material and thicker gauge necessitate some premium price in spite of manufacturing economies, such as scrap recovery. Although aluminum cans for motor oil and frozen orange juice concentrate are currently available at the same price as tinplate cans, this situation is dependent on the supply of aluminum sheet at a special commodity price. The commodity price requires the use of aluminum in the same gauge as tinplate with a considerable sacrifice in strength.

Manufacturing Procedure

Aluminum containers are made by impact extrusion, a process that has been used for a number of years in the manufacture of collapsible metal tubes. As shown in Figure 1, a slug of aluminum is placed in a cup-shaped die, and the impact of a punch causes the metal to flow up the side walls of the punch, thus extruding the container body. Our company has elected to extrude shells which are open at the bottom end and are later closed by double-seaming an end onto the shell. The slug is a ring-shaped piece that is formed into the shoulder and one inch neck opening by the die and the nose of the punch at the same time that the walls are reverse-extruded up the punch. The mono-block type of container has found considerable favor in Europe, and for some purposes in this country. It is likewise made by reverse impact extrusion, but is extruded from a disk so that the integral bottom is formed at the bottom of the die by the nose of the punch. The shoulder and neck opening are later formed from the open end of the straight-walled container by reforming, trimming, and curling.

In the manufacture of the two-piece container the extruded shells are trimmed to the correct body length and the open end is flanged to provide for double seaming the bottom ends. At the same time the neck opening is trimmed to provide the proper diameter and contour for standard one inch valve cups. Lubricant and other extraneous matter is then washed from the shells to prepare them for enameling and decorating. If an inside enamel is to be used, it is sprayed into the shells and baked. The external decorative coating and print is applied in a coating machine while the shells are supported on mandrels. The external coating, including a resistant finishing varnish, is also cured by baking.

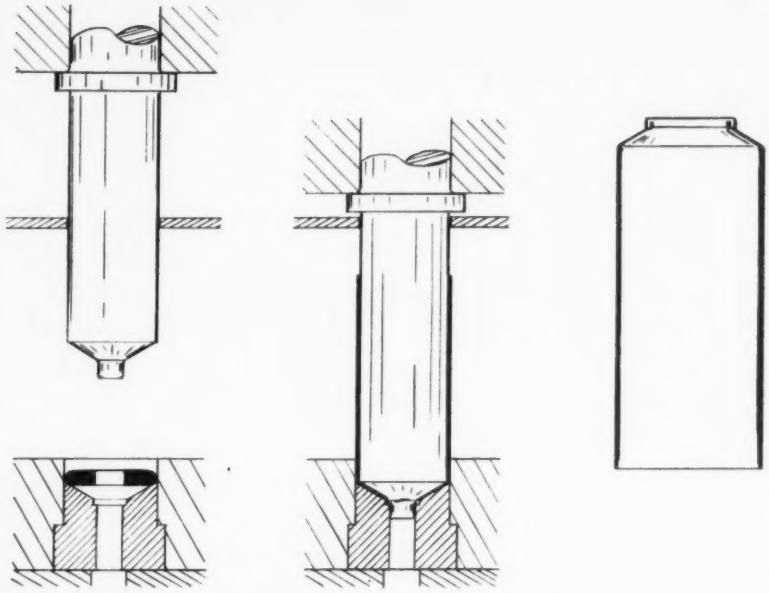
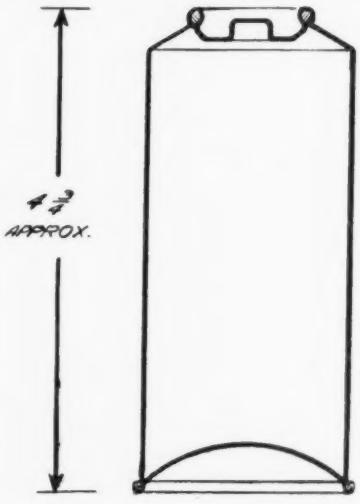


Figure 1. Impact Extrusion of 6 Oz. Aluminum Aerosol Cans.

Figure 2. Cross section of 6 oz. aluminum aerosol can (202 diameter).



The bottom ends are fabricated by conventional can manufacturing procedures, using a die press to stamp the ends from aluminum sheet which has been coated in the flat. Both internal and external coatings may be applied if required. The ends are lined with sealing compound in the conventional manner and double seamed to the shells to complete the container, as shown in Figure 2.

Container Characteristics

The container has been designed to achieve a bursting strength in excess of 250 psig. The buckling resistance of the bottom ends is in the same range. The strength has been achieved by the use of wall thicknesses that are substantially in excess of those for tinplate containers, and by the selection of the proper alloy, temper, and contour for the concave bottom end. Because of the difficulty in obtaining adequate buckling resistance, tinplate bottom ends have been used with aluminum shells in European two-piece aerosol cans (5).

The corrosion resistance of aluminum, commonly observed in

(*Continued on Page* 123)

Hats off to the NEW

FLIP CAP

with dripless pour spout!

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Presenting new packaging beauty, convenience and economy for practically all liquids and granulated products now packaged in round or oblong nozzle-type cans

The cap can't get lost or switched with Continental's new plastic Flip Cap*. It's permanently hinged to the dripless pouring spout. Holds back to permit free pouring—yet snaps shut to stay. The Flip Cap unit is inserted after filling, automatically if you wish at 200 per minute. This permits higher filling speeds, through a larger opening. Moreover, freedom from solder splashes and flux marks permits lithography on the top of the can as well as sides. The Flip Cap nozzle can be supplied in various colors, and the cap design can be stylized as desired. Ask your Continental man.

*Patents pending.

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Pacific Division: Russ Building, San Francisco 4
Canadian Division: 790 Bay St., Toronto 1
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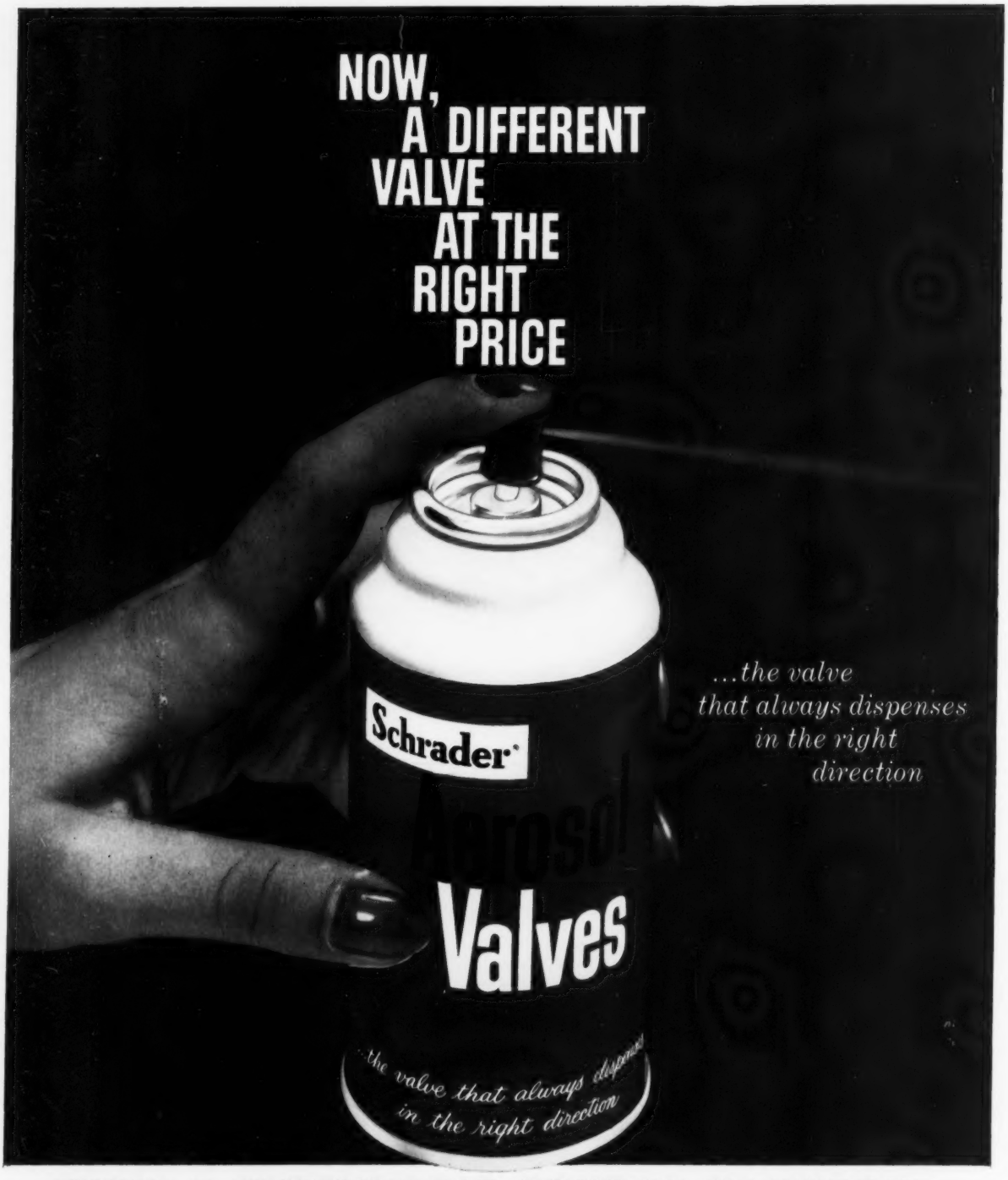

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(*From Page* 120)

structural products, etc., is dependent on a thin oxide coating which forms quickly on the aluminum and reforms if it is broken by mechanical damage. Inside a closed can oxygen is not available to reform the oxide coating if it is broken by mechanical damage or chemical attack. The bare aluminum is an active metal in the electromotive series and subject to rapid corrosion. Its electrolytic corrosion will be accelerated by the presence of other exposed metals in the system, and galvanic cells may be formed between the aluminum oxide and plain aluminum surfaces exposed simultaneously to the product. This situation was well covered in Morris Root's talk, "Corrosion of Aerosol Metal Containers", made before the CSMA, in 1955 (6). In products such as hair sprays made with anhydrous alcohol, there is also evidence of alcoholysis of the aluminum. Although proper formulation of the product and propellant mixture may minimize the corrosive attack on aluminum, there are relatively few products that can be packed successfully in an aluminum container, the interior walls of which are not coated.

The composition of an aluminum alloy has a marked effect on its corrosion resistance, as shown by studies made in the Canco laboratory at Barrington, Ill. Although these studies were made with aluminum food cans, they are illustrative of the effects in aerosol cans. Figure 3 shows the effect of magnesium content on corrosion of enameled aluminum cans by acid foods. The rate of corrosion is measured in terms of number of months to 50 per cent failure as evidenced by swelling of the can due to formation of hydrogen gas, or by the degree of vacuum loss noted in cans which have not swelled. It is obvious that the alloys which have only a trace of magnesium are markedly more corrosion-resistant than those which have magnesium added in order to increase their strength. The reduction in corrosion resistance is roughly proportional to the amount of magnesium over the range studied. It is important to note that this effect was observed on aluminum which was covered with enamel.

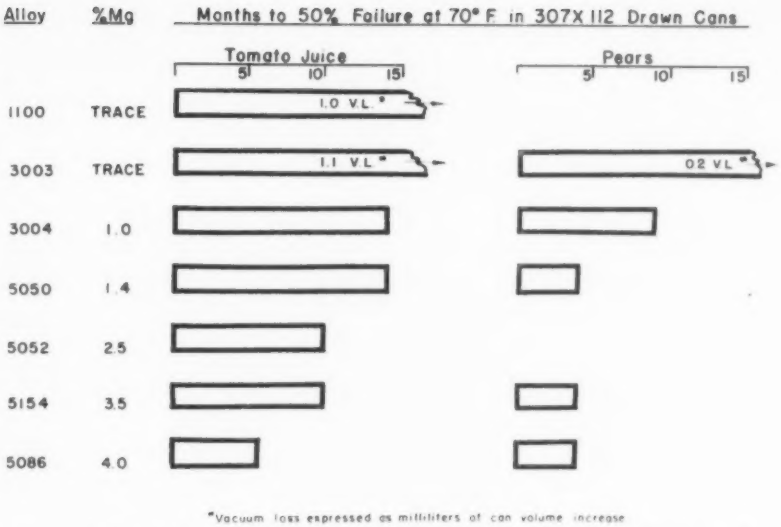


Figure 3. Effect of Magnesium Content on Corrosion of Enameled Aluminum Cans by Acid Foods.

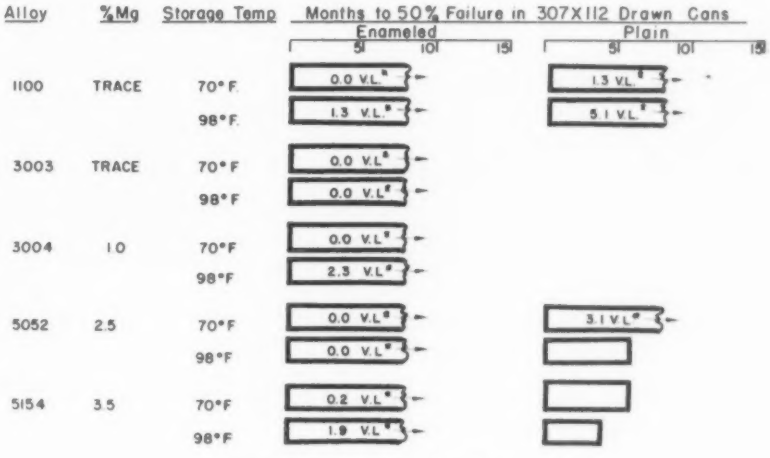
Figure 4 shows the effect of magnesium content on corrosion by asparagus in both plain and enameled aluminum cans. A striking contrast is observed between the early failures of the plain cans, even with this relatively non-corrosive product, and the results on enameled cans, which give evidence of probable satisfactory service life.

In view of these findings, 1100 alloy has been selected for the aluminum shells, and the lowest magnesium content alloy commensurate with the strength requirements is selected for the bottom ends.

The corrosion resistance of aluminum can be substantially improved by an anodizing treatment which provides a thicker and more impervious oxide film through electrolytic action in a special bath. This procedure is highly favored in Europe, but it seems unlikely that the cost of such specialized in-

(*Turn to Page* 195)

Figure 4. Effect of Magnesium Content on Corrosion of Aluminum Cans by Asparagus.



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PACKAGING NOTES

AMA Packaging Show Set for April 4-7

THE need for industrial and individual consumer satisfaction with packages will be underlined at the 29th National Packaging Exposition and Conference sponsored by the American Management Association next month. Both events will be held at Convention Hall, Atlantic City, N. J. The Exposition runs April 4-7 and the Conference April 4-6.

Displays by 335 exhibitors of latest packaging machinery, materials, and methods, will be featured at the show.

Theme on the first day of the three-day conference is "Packaging for Profit" with Orlin E. Johnson, vice-president of production for Bristol-Myers Products Division, Bristol-Myers Co., Hillside, N. J., as lead-off speaker. Mr. Johnson's address is titled "Are You Ready to Package in the Sixties?" Four other speakers, the morning of April 4, will cover other aspects of the theme, including packaging's relationship to the 1960 distribution dollar, and the role of packaging operations at three separate companies.

Three concurrent sessions are scheduled for Tuesday morning, April 5, dealing with package marketing, production, and research. Two of the featured speakers in the package marketing session are A. Kohr Sprenkle of American Stores Co., Philadelphia, on "Where Does Packaging Fit in the 'Marketing Concept'?" and Charlotte Montgomery of *Good Housekeeping* magazine, New York, on "The Housewife Appraises Packages." First speaker in the package production session is R. P. Gardiner, S. C. Johnson & Son, Inc., Racine, Wis. He will discuss "Manufacturing's Part in the Over-All Packaging Program." Integration of package development in a new product program will be discussed by C. D. Schoby, Armour and Co., Chicago, as the first of four speakers in the package research session.

Two successive panel groups will deal with the "Profiles of Packaging" on the final morning of the conference, Wednesday, April 6. The first panel will be concerned with package development and engineering and the second will cover design and merchandising. One of the members of the six man second panel is Max Rogers of Avon Products, Inc., New York.

The exposition, said to be the largest trade show in the $16.5 billion packaging industry, will cover all of the 140,000 square feet of exhibit space at Convention Hall. More than 25,000 visitors are expected at the show which will be open from 10 a.m. to 6 p.m., Monday, April 4, and Wednesday, April 6; 10 a.m. to 9 p.m., Tuesday, April 5; and 10 a.m. to 4 p.m., Thursday, April 7. Registration fee for the show is $2.

Among the exhibitors are:

American Can Co.; Continental Can Co.; Crown Cork & Seal Co.; Freon Products Division, E. I. du Pont de Nemours & Co.; Eastman Chemical Products, Inc.; Portland, Division, Emhart Manufacturing Co.; Ertel Engineering Corp.; Stokes & Smith Plant, FMC Packaging Machinery Division; Fluid Chemical Co.; Walter Frank Organization; General Chemical Division, Allied Chemical Corp.; Adolph Gottscho, Inc.; Kartridg-Pak Co.; MRM Co.; Marken Machine Co.; Monroe-Danford and Co.; Monsanto Chemical Co.; Owens-Illinois Glass Co.; Plax Corp.; Potdevin Machine Co.; Union Carbide Plastics Co., division of Union Carbide Corp.; U. S. Industrial Chemicals Co.; and T. C. Wheaton Co.

★

Packaging Congress

The fourth International Packaging Congress, sponsored by the European Packaging Federation, will be held concurrently with the second "Interpack" exhibition in Duesseldorf, Germany, April 20 to 27. Theme of the congress is: "Packaging Problems of Today and Tomorrow." For program of the congress and list of exhibitors and other pertinent information contact: Nordwestdeutsche Ausstellungs-Gesellschaft, G.m.b.H., Ehrenhof 4, Duesseldorf, Germany.

"Flip Cap" Closer

Continental Can Co., New York, recently introduced a hand-operated closing machine for applying its "Flip Cap" polyethylene nozzle with permanently attached cap on round and oblong nozzle-type cans. First marketed last year, the nozzles are inserted into cans having a special perforated top opening. The "Flip Cap" is inserted into the specially curled perforation by the packer, after filling. Although equipment is available for high-speed insertion of the caps, the company believes the manual closer will find a market among smaller packers. The machine sells for $69.50 f.o.b. New York and can handle 20 units per minute depending upon the operator's facility. It is available from Continental or Theodore Cornelius, machinery manufacturer, 15 Park Row, New York 38.

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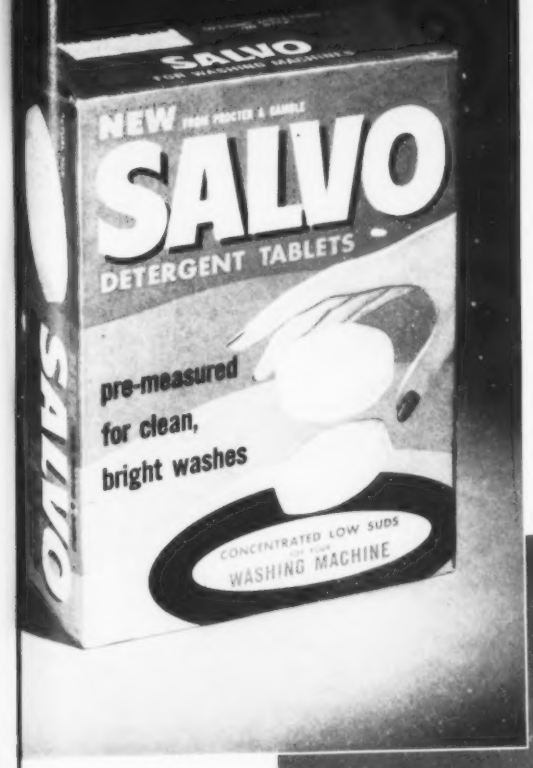
What's New?

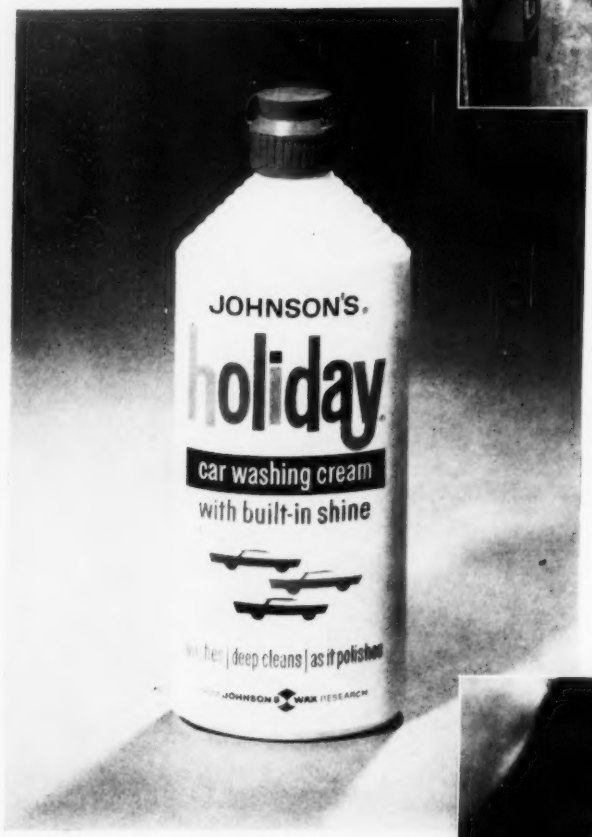


A new idea in detergents is "Salvo," an innovation of Procter & Gamble Co., Cincinnati, which is being test marketed in California. Foil wrapped package printed in red, yellow, orange, white and blue, contains 12 tablets. Each tablet weighs about two ounces, is approximately two inches in diameter and slightly over one inch deep. Two tablets of low sudsing "Salvo" is the recommended dosage for top loading automatic and wringer style washing machines. For front loaders, one tablet is suggested. For heavily soiled clothes, or in extremely hard water, an additional tablet should be used, the maker says. Package shown retails for 41 cents. It has novel "press in, pull up" type of opening on side.

For its first venture in the field of consumer shoe polishes, S. C. Johnson & Son, Inc., Racine, Wis., has just introduced these four products. Currently being marketed in several Ohio cities, the line includes: a "self-shining" liquid for women's shoes; a liquid "scuffed shoe" polish for children; a white shoe polish, and a self-contained shoe shine kit for men. Liquid products are packaged in unique plastic container that also serves as applicator. Suggested retail price is 49 cents each.

"Undi-Glo," a new cold water, liquid "shampoo" for brassieres, girdles and other elasticized lingerie, was introduced last month by Dumas Milner Corp., Jackson, Miss. The product contains a bacteriostat designed to keep garments free from body odor. An optical bleach is also included. "Undi-Glo" was introduced Feb. 15 with a nationwide promotion co-sponsored by Adorable Brassiere Co., New York. Over 250,000 samples of the "shampoo" were said to have been packaged with "Adorable" brassieres and sold in supermarkets, grocery chains and department stores. A coupon distributed with each sample enabled purchasers to obtain the regular nine fluid ounce plastic bottle for 25¢ off the retail price of 89 cents. Polyethylene plastic squeeze bottles by Bradley-Sun are blue with white lettering.

"Statikil," designed to retard static electricity, has been reformulated and is now marketed in a pressure package, Statikil, Inc., Cleveland, announced recently. Available for both industrial and household use wherever static electricity is a problem, the product is packaged in aerosol form in a 12-ounce Crown "Spra-tainer" retailing for $3.



Another new car care product of S. C. Johnson & Son, Inc., Racine, Wis., is "Holiday" car washing cream. Product may be applied with damp sponge to unwashed (dirty) car. "Holiday" dries to haze, which is then wiped off. Packaging is polyethylene plastic, "non-spill" squeeze bottle. Suggested retail price is $1.95.

Device for mechanically locking pressure packages to prevent accidental discharge of contents has just been announced by Spra-Lok Corp., wholly-owned subsidiary of Dupli-Color Products Co., 2440 S. Michigan Ave., Chicago 16. Tradenamed "Spra-Lok," the device can be incorporated in all types of aerosol overcaps. A silver foil label covers an opening in each cap where any key may be inserted to unlock the "Spra-Lok" and release the cap. Unbroken seal indicates none of the package's contents has been discharged. After use, cap may be placed back on can in re-locked position. Cap may be unlocked by key for subsequent use.

Pressure packaged after shave lotion is included in special prepack of Kings Men toiletries of the Lentheric Division of Helene Curtis, Inc., Chicago. In addition to assortment of grooming aids, the pre-pak includes a permanent unit to stock and display after shave lotion, pre-electric shave lotion, cologne, "Luxury" shave and spray deodorant. Display unit has black and white confetti-dotted gray wooden base and bronze-finish metal frame. Abstract, red header card, framed in gold, and decorated with "Kings Men" golden helmet, announces the products on display.

A new name in the field of pressure packaging, Camp Chemical Co., Brooklyn, announced its entry with the introduction of five new pressure packaged products. Camp's line of aerosols, which will eventually be expanded to an even dozen, now includes two insecticides, two room deodorants and a garbage deodorant. Camp's "Odorgo" room deodorant comes in floral bouquet and pine-mist fragrances. Both Camp insecticides, "Roach and Ant Killer" for crawling insects and "Camp House and Garden Insect Killer" have a mint fragrance. "Sanicamp" garbage deodorant combines a deodorant and insecticide. The product is designed for control of odors and insects in garbage cans, garbage dumps and in overflowing sewage. All five new Camp aerosol products are packaged in 12 ounce cans, which are lithographed in several colors. Deodorants have distinctive plastic overcaps.

New packaging for new detergent, "Condensed Ad" controlled sudser, was announced late last month by the Associated Products Division of Colgate-Palmolive Co., New York. New size packages are two-ounce pouch retailing at five cents and 3¾-ounce carton that retails for 10 cents. Both are designed for dispensing from coin vending machines in launderettes. Copy on both new packages stresses the fact that product contains a brightener.

First pressure packaged household furniture polish to be marketed in Great Britain is "Pledge" of S. C. Johnson & Son, Ltd., Westdrayton, Middlesex, England. Product's range of applications is comparable to that of its American counterpart. "Pledge's" ability to dust and wax simultaneously is said to be traceable to breakup actuator used on package. Made by Risdon Manufacturing Co., Naugatuck, Conn., "Micro-Mist" aerosol valve and actuator produces fine, even spray that maker says prevents saturation of wiping cloth. Container for "Pledge" was made by Metal Box Co., London, England.

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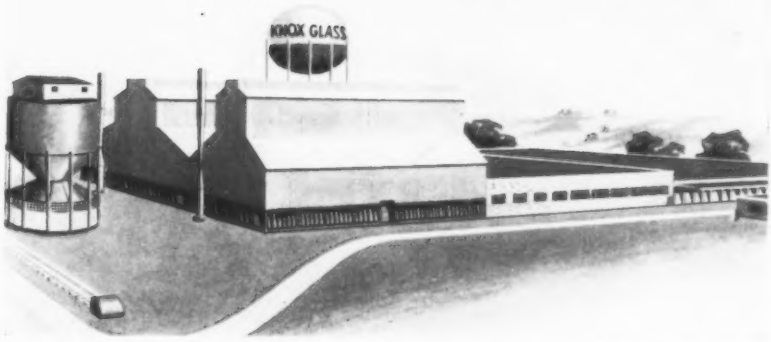

Artist's conception of new Knox glass container plant being built in Georgia.

Knox to Build New Plant

Plans for the construction of a multi-million dollar glass container manufacturing plant at Forest Park near Atlanta, Ga., for Knox Glass, Inc., Knox, Pa., were announced recently by Arthur W. Wishart, president. The company has signed a long-term lease for 185,000 square feet of building space on a 30-acre site. Fully automated, the new building will contain two glass melting furnaces with a daily capacity of 200 tons, a batch plant, annealing lehrs or "curing ovens," storage and shipping areas, offices, and garages. Newest type inspection devices and testing equipment also will be installed, Dr. Wishart stated. Furnaces will handle flint and amber glass and the company later intends to increase capacity to produce both Georgia and emerald green glass. Knox customers in the seven state southeastern market area will be served by the new facilities. Production is scheduled to begin late this year.

—★—

Vulcan Companies Merge

The formation of a new company known as Vulcan-Associated Container Companies, Inc., Birmingham, Ala., was announced late last month by Gordon D. Zuck, president. Seven companies merged into the new organization are: Vulcan Containers, Inc., Bellwood, Ill.; Vulcan Steel Container Co., Birmingham, Ala.; Southwestern Steel Container Co., Dallas, Tex.; Vulcan Containers, Ltd., Toronto, Canada; Vulcan Containers, Ltd., Vancouver, B. C., Canada; Vulcan Containers Pacific, Inc., San Leandro, Calif.; and Atlantic-Vulcan Steel Containers, Inc., Peabody, Mass. Although Vulcan-Associated owns all the stock of the seven companies, each operates individually under its officers and directors retaining its corporate identity, Mr. Zuck stated. The companies manufacture steel pails, drums, and tin cans for several industries including soap and chemical specialties. Mr. Zuck, president of the Birmingham, Dallas, and Peabody operations, has had 28 years of experience in the metal container industry. He stated that the consolidation is the first step in a planned expansion program for the new company.

Vern I. McCarthy, Sr., board chairman of the Bellwood company, is board chairman of the new corporation. Other officers of Vulcan-Associated and the merged companies they represent are: Fred A. Kusta, Birmingham and Dallas, executive vice-president; Paul H. Oberholtzer, secretary; and Vern I. McCarthy, Jr., Bellwood, treasurer.

Gordon D. Zuck

Vern I. McCarthy, Sr.

—★—

Packaging Show in L. A.

A Western Packaging and Materials Handling Exposition has been scheduled for July 19-21 at the Los Angeles Pan Pacific Auditorium.

New 4,000 square foot, air-conditioned headquarters office building of Vulcan-Associated Container Companies, Inc., nearing completion in Birmingham.

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NEW Trade Marks

THE following trade marks were published in recent issues of the *Official Gazette* of the U. S. Patent Office in compliance with section 12 (a) of the Trade Mark Act of 1946. Notice of opposition under section 13 may be filed within 30 days of publication in the Gazette. See rules 20.1 to 20.5. As provided by section 31 of the Act, a fee of $25 must accompany each notice of opposition.

Harvest Supreme — This for insecticides, herbicides, fungicides, and weed killers. Filed May 13, 1958 by Thompson Distributing Co., Algona, Ia. Claims use since Apr. 1, 1958.

Pratts—This for disinfectants, sanitizers, insecticides, rodenticides, animal dips, cattle and barn sprays. Filed Oct. 13, 1958 by Pratt Laboratories, Inc., Junction City, Ky. Claims use since June 20, 1931.

Zep — This for insecticides, disinfectants, deodorants, and room air fresheners. Filed Jan. 2, 1959 by Zep Manufacturing Corp., Atlanta, Ga. Claims use since Jan. 1, 1937.

Hy-Action—This for toilet bowl sanitizer disinfectant. Filed June 12, 1959 by Hysan Products Co., Chicago. Claims use since Apr. 14, 1959.

Kleer Blu — This for laundry starch. Filed July 1, 1959 by Texize Chemical, Inc., Greenville, S.C. Claims use since May 20, 1954.

Coral-Lave — This for liquid emulsion for use in the washing of automobiles. Filed Apr. 17, 1959 by H. D. T. Co. Factors, Inc., White Plains, N. Y. Claims use since Jan. 19, 1959.

Multisol — This for cleaner for carbon and gum deposits. Filed June 15, 1959 by Brulin & Co., Indianapolis. Claims use since July 15, 1954.

DuBois Chemicals — This for grease removers, dishwashing compounds, cleansing agents, hand soaps, synthetic detergents, paint removers, carburetor cleaners, rust removers, lime scale removers, agents for use in removing beerstone, agents for use in steam cleaning, and metal cleaners. Filed July 22, 1959 by DuBois Co., Cincinnati. Claims use since Feb. 2, 1959.

Keglon — This for protective floor coating and dressing material. Filed Dec. 18, 1958 by Pierce & Stevens Chemical Corp., Buffalo, N.Y. Claims use since on or about Oct. 31, 1958.

Columbia Star—This for emulsion type polymer floor preparation for asphalt tile, linoleum, rubber, homogeneous vinyl, vinyl asbestos, cork, and similar resilient floor coverings. Filed July 31, 1959 by Columbia Wax Co., Glendale, Calif. Claims use since July 6, 1959.

NDP-L84 — This for liquid detergent used for cleaning painted surfaces and washing dishes. Filed July 9, 1957 by National Dairy Products Corp., New York. Claims use since Apr. 30, 1956.

NDP-1 — This for alkaline cleaner and sanitizer having good detergency in the presence of hard water and organic soil, used for cleaning dairy and other food equipment. Filed July 9, 1957 by National Dairy Products Corp., New York. Claims use since July 27, 1956.

Made for the Professional! — This for cleaning fluid for automotive parts. Filed Sept. 8, 1958 by Permatex Co., Huntington Station, N. Y. Claims use since Aug. 21, 1958.

Formula d'Elegance — This for automobile cleaners and cleaners for plastics. Filed Dec. 5, 1958 by Mirror Glaze Distributors — Southern California Division. Pasadena, Calif. Claims use since Oct. 10, 1958.

Zep-Blitz — This for floor cleaning compound for institutional use as a janitors supplies product. Filed Dec. 31, 1958 by Zep Manufacturing Corp., Atlanta, Ga. Claims use since March 1958.

Zep — This for cleaning compounds, namely, cleansers, detergents, and degreasers. Filed Jan. 2, 1959 by Zep Manufacturing Corp., Atlanta, Ga. Claims use since Jan. 1, 1937.

Bug Sweep — This for sweeping compound containing insecticidal chemicals with inert ingredients. Filed Mar. 5, 1959 by Joseph L. Loucks, Rock Island, Ill. Claims use since July 24, 1959.

Jersey — This for soaps and detergents intended for commercial and industrial use and hydrocarbon solvent cleaning fluid. Filed Apr. 20, 1959 by Penola Oil Co., New York. Claims use since Mar. 19, 1959.

Serval — This for household and laundry soap and powdered detergents for household and laundry purposes. Filed June 22, 1959 by Oscar J. Roth, doing business as Alpha Chemical Products Co., College Point, N. Y. Claims use since August 1954.

Cameo Corporation — This for stainless steel cleaner. Filed July 6, 1959 by B. T. Babbitt, Inc.. New York. Claims use since June 15, 1958.

Druterge — This for synthetic detergent. Filed July 16, 1959 by E. F. Drew & Co., New York. Claims use since Jan. 21, 1955.

Sweet-X — This for chemical product for cleaning and clearing garbage disposal systems and drains. Filed July 27, 1959 by Rooto Corp., Detroit. Claims use since June 2, 1959.

Style — This for liquid detergent for hand laundering. Filed July 29, 1959 by Allen B. Wrisley Co., Chicago. Claims use since February 1957 and since Dec. 13, 1934 on toilet soap.

Thermo-Fax — This for chemical composition useful for cleaning surfaces. Filed July 31, 1959 by Minnesota Mining and Manufacturing Co., St. Paul, Minn. Claims use since May 13, 1959.

Masterfax — This for chemical cleaning preparation for removing ink stains and wax stains from smooth surfaces. Filed Aug. 7, 1959 by Ditto, Inc., Chicago. Claims use since June 25, 1959.

De-Oxidize!—This for automobile polish. Filed Oct. 17, 1958 by Northbrook Products, Inc., Chicago. Claims use since Aug. 29, 1958.

Royal Satin—This for flowable wax preparation of amorphous nature for use in cleaning and polishing automobile bodies and for the provision of a durable protective coating upon such bodies. Filed Apr. 13, 1959 by Garry Laboratories, Inc., Buffalo, N.Y. Claims use since on or about Nov. 26, 1958.

Staco—This for furniture polish, floor cleaning and polishing compounds, and liquid floor wax. Filed June 29, 1959 by State Chemical Co., Amarillo, Tex. Claims use since June 1, 1944.

Contrast—This for liquid floor polish. Filed Aug. 17, 1959 by Huntington Laboratories, Inc., Huntington, Ind. Claims use since Apr. 28, 1959.

Diaper Pure—This for disinfectant which helps in preventing diaper rash, deodorizes, and aids in cleaning. Filed July 2, 1957 by Blue Dew Corp., Buffalo, N.Y. Claims use since 1946.

Instant-Kill—This for insecticide. Filed Jan. 9, 1959 by D & A Co., Bridgeport, Conn. Claims use since Dec. 1, 1953.

Core Lube — This for antifreeze. Filed June 10, 1959 by Core-Lube, Inc., Danville, Ill. Claims use since Aug. 6, 1958.

Steem-Up — This for water soluble cleaner for loosening scale, namely, a cleaner for steam irons. Filed July 13, 1959 by Lake Products Co., St. Louis. Claims use since June 19, 1959.

Dubrite—This for cleaner for metal surfaces. Filed July 22, 1959 by DuBois Co., Cincinnati. Claims use since Dec. 29, 1958.

Dairy Sheen—This for liquid acid detergent. Filed Aug. 3, 1959 by Economics Laboratory, Inc., St. Paul, Minn. Claims use since Jan. 22, 1959.

Esteem—This for chelated alkaline cleaner. Filed Aug. 3, 1959 by Economics Laboratory, Inc., St. Paul, Minn. Claims use since Jan. 28, 1959.

The Janitor in the Drum—This for wax for commercial use, heavy duty wax, floor dressing for commercial use, and gym finish, all of these products being polishing waxes for use on surfaces where the use of wax is indicated. Filed Apr. 28, 1958 by Texize Chemicals, Inc., Greenville, S.C. Claims use since May 1949 on wax for commercial use.

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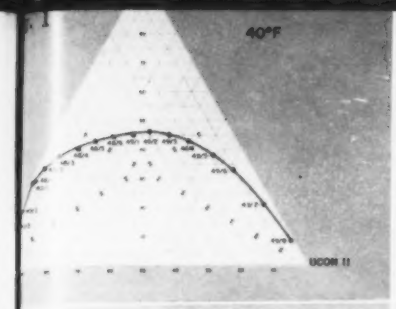
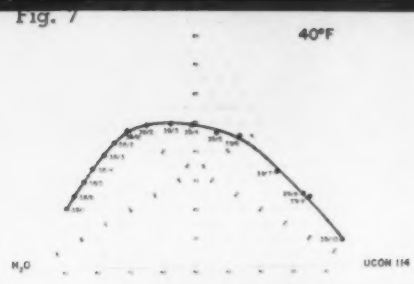


Fig. 7



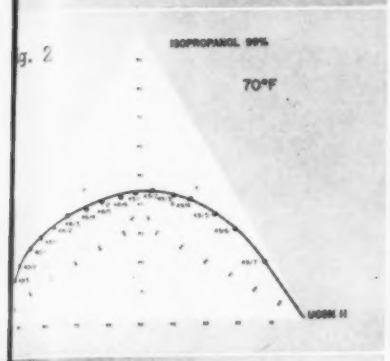
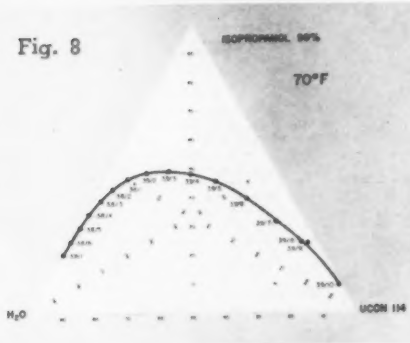


Fig. 8



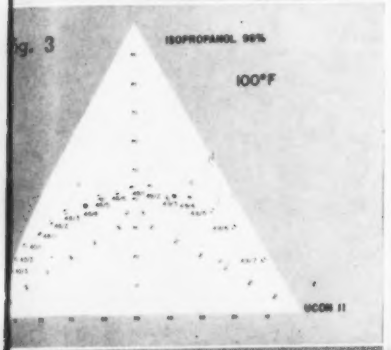
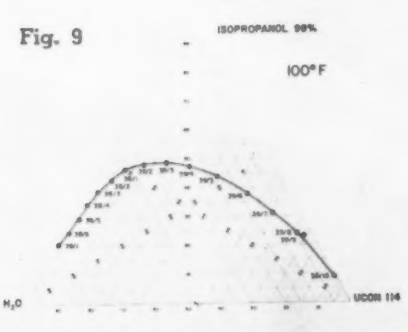


Fig. 9



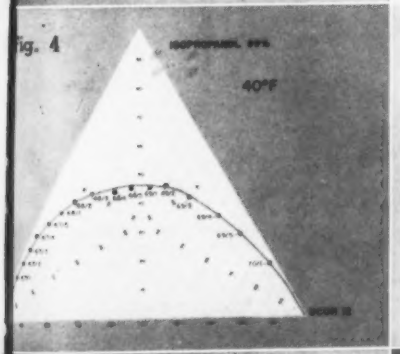
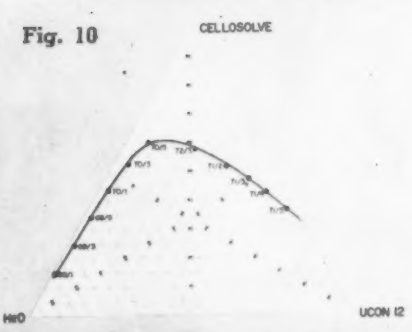


Fig. 10



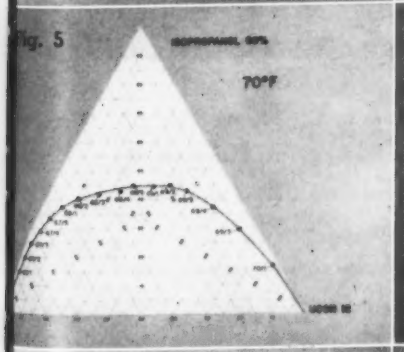
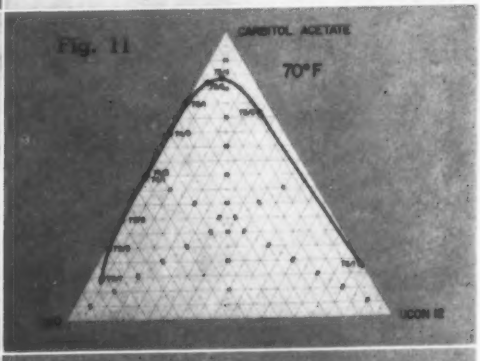


Fig. 11



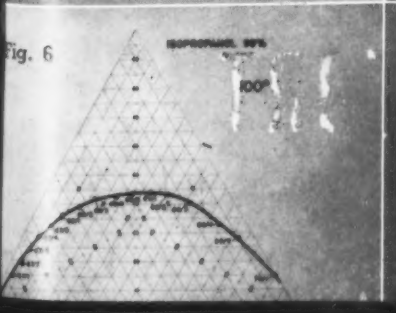
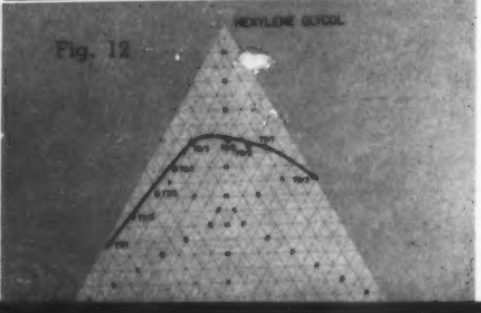


Fig. 12



Low Cost Water Based Aerosols

By D. C. Geary*
Union Carbide Chemical Co.
New York, N. Y.

HERETOFORE, attempts to develop an aqueous two-phase aerosol have met with little success. Incompatibility with the propellant, container corrosion, oiliness, and dispensing of the product as a cold, coarse, wet stream have been deterring factors. Increased quantities of water in aerosol formulations permit reduced formulation costs, reduced flammability, and incorporation of ingredients soluble only in H_2O.

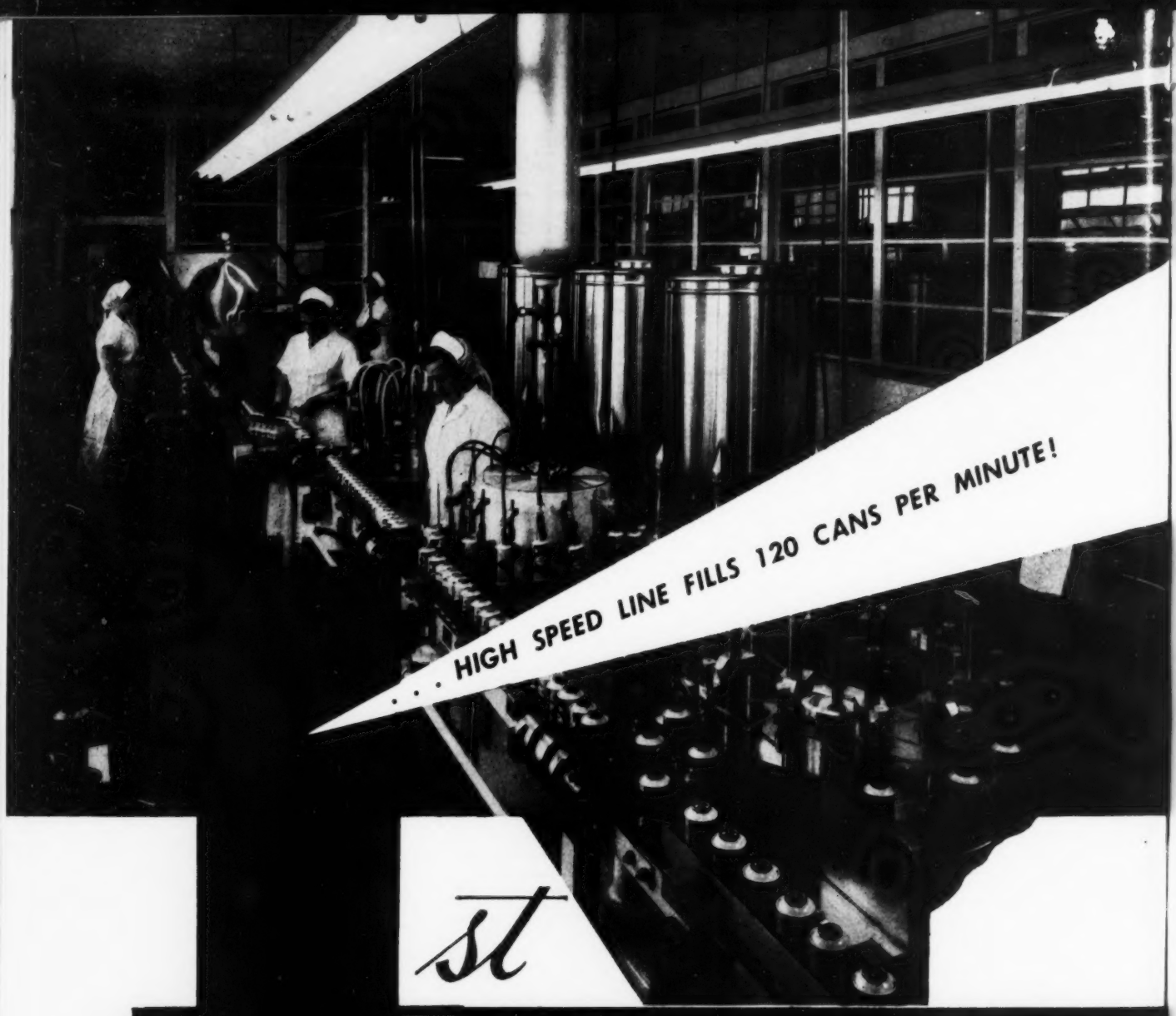
The solubility studies of the ternary systems of H_2O, fluorocarbon propellants, and cosolvents along with the binary systems of cosolvents and fluorocarbon propellants should serve as a useful tool in shortening the time required to formulate successfully water-based aerosol products.

Typical low-cost water-based insecticidal and household aerosol formulations have been developed from these basic data to illustrate the practical applications that can be realized. Two-phase aerosols can be formulated as suitable residual or space sprays if correctly compounded. Inhibitors have been found which prevent the corrosion usually encountered with aqueous systems.

In attempting to develop water-based aerosol formulations, an initial decision was reached to conduct solubility studies of binary systems of fluorocarbon propellants and solvents that have found wide

(*Turn to Page* 139)

*Paper presented at 46th annual meeting, Chemical Specialties Manufacturers Ass'n., Washington, D. C., Dec. 9, 1959.



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An all-stainless-steel line for loading pressurized food products in aerosol containers under sanitary conditions is now in operation at Stalfort's modern Pressure-Pak plant. Completely segregated in a glass-enclosed area, this line is dismantled and sterilized before and after each production day. Any food product suitable for aerosol dispensing, even powder, can be economically handled in this area.

Three other high-speed lines are available for loading metal or glass aerosol containers that do not require completely sanitary conditions.

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Table I. Binary Solubility Studies of Solvents in Fluorocarbon Propellants

Material	Solubility in Propellants at 70F		
	11	12	114
Acetone	M	M	M
Amyl alcohol (primary)	M	M	M
Butyl "Cellosolve"*	M	M	M
"Carbitol"* acetate	M	M	M
"Carbitol"* solvent	M	Miscible range 58.4%S-41.6%P to 100%S-0%P	Miscible range 81.7%S-18.3%P to 100%S-0%P
"Carbowax" 200*	Immiscible range 0.2%S-99.8%P to 73.0%S-27.0%P	Immiscible range 0.2%S-99.8%P to 89.0%S-11.0%P	I
"Carbowax" 600*	Immiscible range 0.2%S-99.8%P to 53.0%S-47.0%P	Immiscible range 0.2%S-99.8%P to 87.0%S-13.0%P	I
"Cellosolve"* acetate	M	M	M
"Cellosolve"* solvent	M	M	M
Disobutyl ketone	M	M	M
Dipropylene glycol	M	Immiscible range 1.6%S-98.4%P to 70.9%S-29.1%P	Immiscible range 0.8%S-99.2%P to 81.1%S-18.9%P
Ethanol (100%)	M	M	M
Ethyl acetate	M	M	M
Ethylene glycol	I	I	I
1, 2, 6 Hexanetriol	I	I	I
Hexylene glycol	M	M	M
Isobutanol	M	M	M
Isodecanol	M	M	M
Isohexanol	M	M	M
Isopropanol (99%)	M	M	M
Isopropyl acetate	M	M	M
Methanol (100%)	M	M	M
Methyl "Carbitol"*	M	M	Immiscible range 1.1%S-98.9%P to 75.1%S-24.9%P
Methyl ethyl ketone	M	M	M
Methyl isobutyl ketone	M	M	M
Monoethanolamine	I	I	I
Monoisopropanolamine	Miscible range 67.2%S-32.8%P to 100%S-0%P	Miscible range 86.5%S-14.4%P to 100%S-0%P	I
Morpholine	M	M	M
N-butyl acetate	M	M	M
Propylene glycol	Immiscible range 0.2%S-99.8%P to 85.6%S-14.4%P	Immiscible range 0.2%S-99.8%P to 90.9%S-9.1%P	I
Polypropylene glycol 150	M	Immiscible range 2.5%S-97.5%P to 60.0%S-40.0%P	Immiscible range 1.9%S-98.1%P to 78.0%S-22.0%P
Polypropylene glycol 425	M	M	Immiscible range 4.2%S-95.8%P to 52.4%S-47.6%P
Polypropylene glycol 1025	M	M	M
Polypropylene glycol 2025	M	M	M
Triethanol amine	I	I	I
Triethylene glycol	Immiscible range 0.4%S-99.6%P to 81.2%S-18.8%P	Immiscible range 0.2%S-99.8%P to 91.0%S-9.0%P	I
"Ucon"* fluid 50HB55	M	M	M
"Ucon"* fluid 50HB660	M	Immiscible range 0.2%S-99.8%P to 54.3%S-45.7%P	Immiscible range 0.2%S-99.8%P to 70.9%S-29.1%P
"Ucon"* fluid LB65	M	M	M
"Ucon"* fluid LB385	M	M	M

M = Miscible in all proportions.
I = Immiscible in the range 0.2%S-99.8%P to 95.0%S-5.0%P with probable insolubility outside this range.

S = Solvent.
P = Propellent.
*Trade Name of Union Carbide Corp., New York.

Count On Newman-Green Valves For Finer, More Uniform, Mistier Spray Patterns

Newman-Green's exclusive spray head design produces a uniform spray pattern that is finely atomized and evenly dispersed. The unique two-tone spray head assures quick, positive identification of the orifice opening. Direction of the spray pattern is always immediately apparent.

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The built-in quality of Newman-Green valves attest to the thorough inspections and control methods, necessary to providing the pressurized packaging industry with the best valve obtainable. Its dependable operation sparks consumer acceptance and that's what counts! Call your nearest Newman-Green representative today for pertinent help in solving any of your aerosol packaging problems.

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NEWMAN-GREEN *Creative Aerosol Valve Engineering*

(*From Page* 135)

use in household, industrial, and cosmetic formulations. The solvents found to be miscible in all proportions with "Ucon" (trade name of Union Carbide Corp.) Propellants 11, 12 and 114 were screened to determine which solvents were also completely miscible with H_2O. Solvents found miscible in all proportions with fluorocarbon propellants and also with H_2O, were selected for the ternary solubility studies.

The binary solubility studies of solvent and fluorocarbon propellants were conducted at 70°F. in the following manner: Two-tenths gram of solvent were placed in a Fischer-Porter compatibility tube. Propellants were added by pressure filling until 99.8 grams were present or until changes in miscibility were attained. The miscibility or immiscibility or points of change in miscibility were recorded as observed in the 0.2 per cent solvent/99.8 per cent propellant to 50 per cent solvent/50 per cent propellant composition range.

Forty seven and one-half grams of solvent were placed in a second compatibility tube; 2.5 grams of propellant were added. The miscibilities or immiscibilities at the 95 per cent solvent/5 per cent propellant level were observed. If the compositions were miscible, propellants were added until 47.5 grams of solvent and 47.5 grams of propellant were present or immiscibilities were observed. The miscibility or immiscibility or points of change in miscibility were recorded as observed in the 50.0 per cent solvents/50.0 per cent propellants to 95 per cent solvent/5 per cent propellant composition range.

Where definite amounts of the solvent and propellant were weighed into the compatibility tubes, the miscibilities were determined after the tubes were shaken and allowed to attain equilibrium at 70°F. Where the propellants were pressure filled into the compatibility tubes containing a definite weight of solvent, the tubes were preconditioned at 70°F. Propellants were then added until incompatibility could be detected. Tubes were shaken and allowed to attain equilibrium. If compatibilities were restored, propellants were again added until incompatibility could be detected. These procedures were repeated until compatibility could not be reattained by shaking or conditioning. The compositions of solvent and propellant were calculated from the weight of material in the tube.

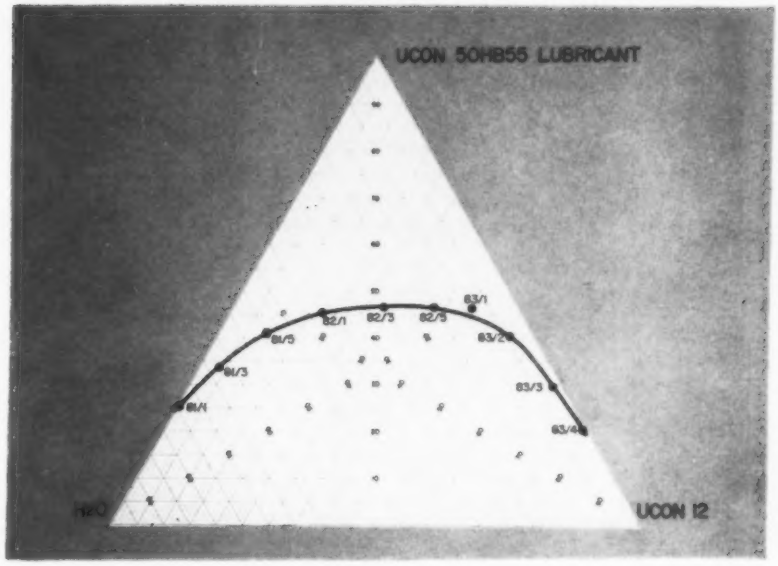

Figure 13

Table I summarizes the solubility data which were obtained with propellants 11, 12 and 114.

If combinations of solvent and propellant were miscible in proportions ranging from 99.8% propellant/0.2% solvent to 5% propellant/95% solvent, the mixtures were recorded as miscible in all proportions. If the mixtures were immiscible within this range, the immiscibilities were recorded and no further attempts were made to determine any possible miscibility outside of this range. If miscible at, but not throughout, the range of compositions, miscibility changes were recorded as observed.

Table II.

Methanol 100%
Ethanol 100%
Isopropanol 99%*
"Carbitol" acetate*
"Cellosolve" solvent*
Hexylene glycol*
Acetone
Morpholine
"Ucon" fluid 50HB55*

The solvents found to be miscible in all proportions with propellants 11, 12 and 114 were screened for complete miscibility with H_2O. Table II lists the solvent which qualify.

Starred solvents were selected as components in the ternary systems with H_2O and propellant. The procedures followed in the ternary solubility studies were similar to those used in the binary solubility studies. In the ternary systems, given ratios of solvent and H_2O were weighed into the compatibility tubes and propellants were titrated in by pressure filling.

The ternary systems of isopropanol (99%), H_2O, and propellant 11 is pictured in Figure 1 at 40°F., in Figure 2 at 70°F., and in Figure 3 at 100° F. As expected, the areas of miscibilities above the curve increased slightly with increases of temperature. The ternary system of isopropanol (99%), H_2O, and propellant 12 is pictured in Figure 4 at 40°F., in Figure 5 at 70°F., and in Figure 6 at 100°F. The positions of this miscibility-immiscibility curve at these three tem-

(*Turn to Page* 204)

The magic touch of aerosol packaging

Practically every time you enter a drug store nowadays, more and more aerosol packaged drug and cosmetic products appear on the shelves and counters. Not just new products. But well known, established brands as well. And with good reason! For these products are "better" in aerosol form. They're easier to use and more acceptable. They generate more sales and yield a higher margin of profit.

The booming aerosol drug market

For the second year in a row, pharmaceuticals were the fastest growing of all aerosol groups—showing a sales increase of 50% in 1958 over 1957, compared to a 20% increase for all aerosols. And the market is still growing fast for a host of aerosol pharmaceuticals, such as external analgesics, spray-on bandages, athlete's foot medication and nasal sprays. It is expected that aerosol drug sales will reach $200 million by 1961!

Tremendous growth of aerosol cosmetics

Aerosol packaging has a magic touch in helping to sell products for women. Hair sprays are the largest selling single aerosol product group—115 million units in 1958*. Aerosol colognes and perfumes have proved phenomenal sellers—shooting up from 5.4 million units as recently as 1955 to 28 million units in 1958*. Aerosol hand lotions and creams are showing a similar increase, as are aerosol personal deodorants.

✓ How to "enter" the profitable aerosol field

If *your* product can be sprayed, brushed on, daubed, poured or dusted—you, too, may be able to share in the spectacular success of aerosol packaged products. Here's how General Chemical, one of America's leading producers of aerosol propellants, can help you enter the profitable aerosol field:

Market information—Helpful facts and figures on the aerosol market for many types of drug and

yields bigger sales . . . higher profits!

cosmetic products are available to present and potential aerosol marketers.

Expert technical service—General Chemical has one of the most complete aerosol development laboratories in the country. We will be glad to help you develop the right propellant and formulation compatible with your product, its container and its uses.

New product ideas—The results of continuing research into new and improved aerosols—including information about promising new aerosol formulations developed in our "Genetron" aerosol propellant laboratories—are available in "Genetron" aerosol propellant Product Information Bulletins covering many types of aerosol products. Write for a complete list of "Genetron" aerosol propellant Bulletins presently available.

Contract fillers—We will also be glad to put you in touch with highly capable contract fillers in all parts of the country who will put up your product in aerosol form for test marketing and handle full scale commercial production as well. *You don't have to invest a cent in plant, special equipment or personnel when you work with these contract fillers!*

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*Estimated by Market Surveys Department,
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PRESSURE PACKAGING

ATI Appoints Kleppe

The appointment of Philip H. Kleppe, Jr., as manager of quality control for Aerosol Techniques,

Philip H. Kleppe, Jr.

Inc., Bridgeport, Conn., was announced last month by H. R. Shepherd, president. Mr. Kleppe was formerly research and development chemist. In his new post he is responsible to Fred Presant, director, research and development.

Other appointments announced by Mr. Shepherd include Peter Sgaramella as assistant plant manager of chemical manufacturing and Charles L. Biancheri as assistant plant manager of production and packaging. They report to Earle L. Taylor, plant manager, in their new posts. Before joining ATI when it was founded, Dr. Sgaramella was with Propel Chemicals, Brooklyn, N. Y. Mr. Biancheri has been with ATI for the past four years and formerly had been with Revlon, Inc., New York. Also announced was the appointment of Ben C. Wisniewski as supervisor of maintenance for ATI.

—★—

Pan Pak Transfers Kotlik

John F. Kotlik, technical director of Pan Pak Co., a subsidiary of Strong Cobb Arner, Inc., announced recently that he has been transferred to 10 High St., Attica, N. Y. Pan Pak Co. specializes in pressure packaging of cosmetics, pharmaceuticals and foods.

—★—

French Aerosol Meeting

The French Committee for Aerosols held its annual meeting in Paris on Jan. 14. Within the scheduled research program of the European Aerosol Federation, France has undertaken the study of cutaneous and respiratory reactions to aerosol propellants. The meeting heard a paper by Professor Quevauviller, professor of hygiene at the School of Pharmacy of Paris, on cutaneous tolerance of chlorofluoromethanes. These compounds were found to be non-irritating according to this report.

M. Sfiras, chemical engineer, spoke on his experiences in pressure packaging perfume products and Dr. Daragan presented a talk on the technology of pressure packaging.

Three motion pictures were shown: A cartoon film by E. I. du Pont de Nemours showing the potentials of pressure packaging; a documentary by Cie. Saint Gobain Verre Creux demonstrating modern methods of manufacture in the glass industry, and a film by Farbwerke Hoechst designed to educate and inform the retailer on all aspects of aerosols.

—★—

Aerosol Seminar Planned

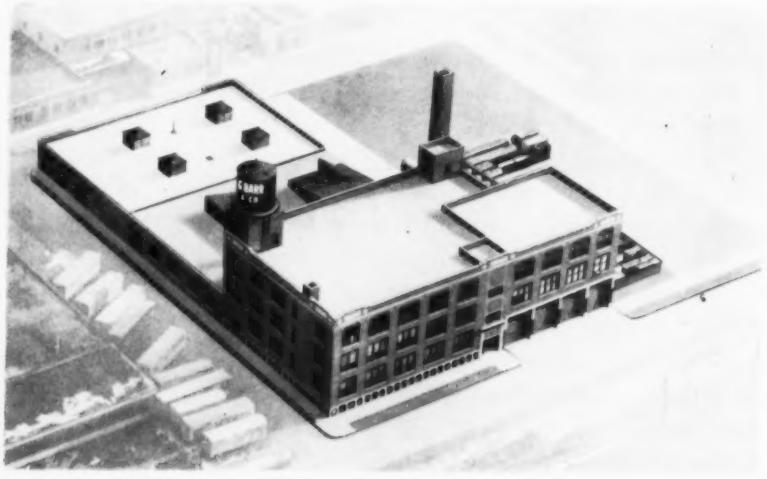
A special seminar in aerosol technology has been scheduled to begin Mar. 24, at the Jamaica, N. Y., campus of St. Johns University College of Pharmacy. The program, arranged by Francis J. Sciarra, associate professor of pharmaceutical chemistry at St. John's, is designed to provide more than a fundamental knowledge of aerosols to members of the chemical specialties, cosmetic, pharmaceutical, and food industries. It will be held on consecutive Thursdays from 7 to 9 p.m. through May 5. Fee for the seminar series is $30 and advance registration is required.

Lecture topics and speakers are:

Mar. 24: "Aerosol Principles," Dr. Francis Mina; "The Nomenclature and Manufacture of Liquified Gas Propellants," Lloyd T. Flanner, General Chemical Division, Allied Chemical Corp., New York.

Mar. 31: "Liquefied Gas Propellants"; "Physical and Chemical Properties of Propellants," Samuel Livingood,

A one-story building with 15,000 square feet of floor space was recently leased by G. Barr and Co., Chicago, contract packager, private label manufacturer and aerosol loader. The new property shown in background, adjoins the company's 100,000 square foot building (in foreground) at 3601 S. Racine St. and provides additional manufacturing and warehousing space. Outdoor area at right is additional 20,000 square feet leased by the company to enlarge railroad siding facilities and provide car parking lot.



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Specify Eastern for the best in

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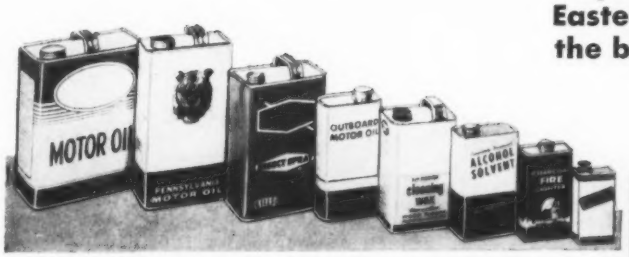

SIZES: 12 OZ. ROUND; and "F" STYLE ½ PINT, PINT, QUART, 40 OUNCE, ½ GALLON, U. S. GALLON, IMPERIAL GALLON, and 2 GALLON.

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Union Carbide Chemicals Co.; "Toxicity of the Propellants," Fred T. Reed, E. I. du Pont de Nemours & Co.; "Compressed Gas Propellants," Robert C. Webster, Air Reduction Co.; and a panel on propellants with David S. Tillotson, Pennsalt Chemicals Corp., as moderator.

Apr. 7: "Aerosol Containers," Larry Garton, American Can Co.; "Aerosol Valves," Walter Beard, Jr., Risdon Manufacturing Co.; "Aerosol Components," a panel session with Joseph Pizzuro, Precision Valve Corp., W. W. Wolfe, Owens-Illinois Glass Co., and Edmund Budzilek, Wheaton Plastic-Cote Corp., moderator.

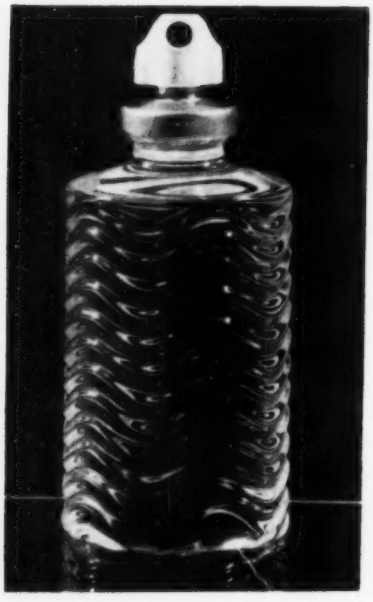
Apr. 14: Holy Thursday, no session.

Apr. 21: "Food Aerosols," W. Earl Graham, Clayton Valve Corp.; "Medicinal and Pharmaceutical Aerosols," Dr. Sciarra of St. John's; and "Cosmetic Aerosols," Victor DiGiacomo, Givaudan-Delawanna, Inc.

Apr. 28: "Aerosol Packaging Equipment," John Hart, Stalfort Pressure-Pak, Inc.; "Plant Operation," Anthony Iannacone, Fluid Chemical Co.; and a demonstration of laboratory equipment by Dr. Sciarra and his staff.

May 5: "New Drug Applications for Aerosols," Julius Hauser, Food & Drug Administration; reception and awarding of certificates of attendance.

New uncoated glass aerosol bottle was introduced recently in 13 western states by Par Industries, Inc., Los Angeles, and by Old Empire, Inc., Newark, N. J., in the east. The one and a half ounce container is being sold to marketers of cosmetics and new designs are expected to be introduced this year. Several overcaps are available with the bottle which is equipped with a Risdon "Micro-Mist" valve. Uncoated glass containers have been used by aerosol perfume loaders in France for more than a year.



Seek Licensee on Aerosol

Commonwealth Engineering Co. of Ohio, Dayton industrial research and development consultants is seeking to license on an exclusive basis an aerosol dishwashing detergent which it owns. The inventor of the product is Harry A. Toulmin, Jr., who owns Commonwealth Engineering, and who was issued a patent for the product late last fall. According to the patent, the detergent is sprayed on dishes after they are placed in a sink rack or dishwasher and are wet with hot water. Then they can be rinsed with warm water and dried. Use of the product is claimed to have the incidental effect of keeping the housewife from getting chapped hands. Commonwealth's executive office is at 1771 Springfield St., Dayton 3. Malvern J. Hiler is president.

—★—

Herzka Establishes Firm

Alfred Herzka, who recently left the Metal Box Co. at Alperton, Middlesex, England, to become an aerosol consultant (see *Soap and Chemical Specialties*, Jan. 1960, p. 149), has established an aerosol consulting firm known as Pressurized Packaging Consultants, Ltd., located at Ashbourne House, Alberon Gardens, London, N. W. 11, England. Telephone number of the new firm is SPeedwell 9667/8.

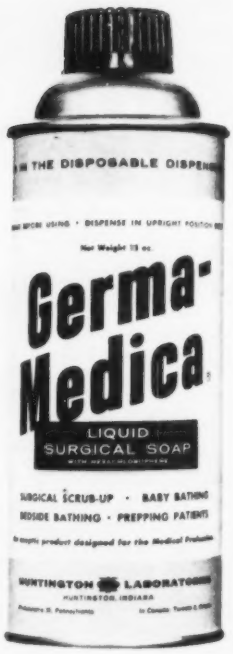
Mr. Herzka, who is co-author of "Pressurized Packaging (Aerosols)" published early last year, was head of aerosol development for Metal Box. He is widely known in Europe for his work in aerosol research and has worked closely with the chemical industry for the past 14 years.

—★—

New Aerosol Bacteriostat

A new long lasting bacteriostatic and fungistatic agent for textiles and hard surfaces will be marketed soon in aerosol form, Yardney Chemix Corp., 40-50 Leonard St., New York, announced last month. Based on a metallic zinc compound the spray is said to combine with the textile fiber to give protection lasting through 20 washes, dry cleanings or bleachings. Tradenamed "Eversan SP" the spray comes in three versions, one for wool, one for cotton, and another for man made fibers. Developed by Ions Exchange and Chemical Corp., New York, "Eversan" was originally designed as a permanent textile bacteriostat for application in the mills. It will be available to consumers in an aerosol package pressurized with "Freon" and also as an aqueous solution for application by spray gun.

"Eversan" is claimed to be non-toxic and non-irritating, colorless and odorless. Plans call for a special pressure package incorporating a mothproofing compound as an additive, according to Yardney Chemix. The product is expected to retail at $1.75 for a 10-ounce can.



"Germa-Medica" liquid surgical soap with hexachlorophene, a product of Huntington Laboratories, Inc. Huntington, Ind., is now available in 15-ounce aerosol package.

—★—

Two in Risdon Posts

Russell R. Ayres, Jr., was appointed general sales coordinator and John K. Quinn was named assistant sales manager of the cos-

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METERED SPRAY AEROSOL SPECIALISTS

Exclusive, specially designed equipment for fast production of all metered dispensers.

RESEARCH to develop the right product

QUALITY CONTROL to make the package marketable

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FLORIDAS' OLDEST CONTRACT PACKAGER

Your product can be packaged in America's fastest growing market AT NO COST TO YOU. The freight saved usually pays the bill.

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Highest standards of quality in the industry. Know-how gained in production of hundreds of millions of perfect packages. Creative research. Meticulous quality control. Full cooperation in formula and product development.

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AEROSOL PACKAGING *to fit* **YOUR PRODUCT**

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GARD **A COMPLETE AEROSOL SERVICE**

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FOR FOOD, DRUGS, PAINTS AND CHEMICAL SPECIALTIES

GARD now offers the most complete, most modern filling facilities in the industry for all aerosols from food to paint. Minimum production runs—as low as 1,000 cans to 1,000,000 and up! Air-conditioned, humidity controlled throughout.

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Insecticides, Deodorants, Tooth Paste, Shave Cream, Cosmetics, Toiletries, Household & Industrial Products, Powders, Colognes, Plastic Sprays, etc.

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Russell R. Ayres, Jr.

John K. Quinn

metic and aerosol divisions last month for Risdon Manufacturing Co., Naugatuck, Conn. With Risdon since 1940, Mr. Ayres now coordinates sales activities of the aerosol, cosmetic, and metal goods divisions. His most recent post was sales manager of the metal goods division. Mr. Quinn joined the firm in 1956 as a sales engineer. The company manufactures aerosol valves and containers, cosmetic containers, and metal components for industrial and consumer products.

—★—

Add Aerosol Filling Line

A second aerosol filling line was recently added by Midwest Consultants, Inc., St. Louis, Mo., to double its production capacity. The fully automatic straight line was built by Kartridg Pak Co., Franklin Park, Ill. Midwest, private label and contract packagers and formulators, was established in 1934 and also manufacturers a line of cosmetics, biochemicals, printing inks, and paints.

—★—

Trio Adds Consumer Line

The addition of a consumer line of household aerosol products to its complete range of sanitary and industrial chemical specialties was announced recently by Trio Chemical Works, Inc., Brooklyn, N. Y. Tradenamed "Amazon," the new line is made up of 27 products including insecticides, air fresheners, and cleaning and maintenance compounds. Several automotive specialties, marine products, and paints also will be marketed under the tradename.

A supplier of soaps and chemical specialties for industrial use for the past several decades, Trio has formulated its new line especially for household use, according to Harold Blank, president. Marketing plans for the "Amazon" line include retail promotions, special display units, trade advertising, and the establishment of a national sales force.

—★—

Koster to Gard Industries

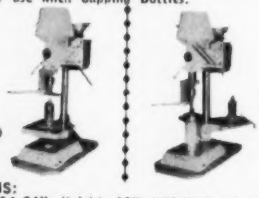
Edward J. Koster, Jr., has been appointed national sales manager for the Itt division of Gard Industries, Inc., Northfield, Ill., it was announced last month by Howard G. Klehm, president. The Itt division produces a line of aerosol products for household and

Edward J. Koster, Jr.

NEW COMBINATION
CAPPER
FOR AEROSOLS

BUILDER'S NEW "Combination Drill Press Capper" for Aerosol Bottles and Cans has a Production Rate of approximately 2 per minute with Aerosol Bottles . . . 8 per minute with Aerosol Cans.

BUILDER'S CAPPERS can be used as a DRILL PRESS where Aerosol Production does not employ it Full time. Foot Switch included for use when Capping Bottles.



Bottle Capper (motor used)

Can Capper (motor not used)

DIMENSIONS:
Base Size: 14x24", Height: 30", 110 Volt AC. ¼ HP Motor
Aerosol Bottle Capper $208.00
Can Capping Attachment $160.00

BUILDERS PRODUCTS
Division of BUILDERS SHEET METAL WORKS, Inc.
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The contract packager had the answer *. . . another success story from the ISOTRON file.*

meet your new aerosol research staff!

You don't have to overload your own research and production facilities to market a successful aerosol-packaged product. You can turn these functions over to the expert sales, testing and production team at Peterson Filling and Packaging Co., and concentrate on marketing. This Danville, Illinois, firm has helped manufacturers of drugs, cosmetics and many other products to cash in on the profitable aerosol market.

A well-equipped laboratory and a skilled research and testing staff at Peterson assure you of exact adherence to your formula . . . or expert help in reformulating your product for aerosol use. To insure proper quality control...filling lines, blending and refrigeration operations are in separate rooms. Ample warehousing and drop shipments are other reasons why Peterson is well qualified to take over your aerosol planning.

Among the many services offered by the contract packager, selection of the right aerosol can, valve and propellent for your product is vital. Many packagers always specify ISOTRON® . . . the original factory-sealed propellents that are extra-pure and extra-dry.

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The Key To Modern Living

Pennsalt Chemicals®
ESTABLISHED 1850

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PENNSALT CHEMICALS CORPORATION
Three Penn Center
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personal use which are sold through distributors who maintain their own sales organizations for direct contact, door-to-door, and party plan selling. Mr. Koster, who was formerly district manager for Encyclopedia Brittanica, also is responsible for distributor franchises for Gard's subsidiary line of aerosol products, tradenamed "Tap," which are sold through general retail outlets.

—★—

N. Y. Firm Buys Plasti-Kote

Plasti-Kote, Inc., Cleveland, manufacturer of aerosol paints, was recently acquired by New England Industries, Inc., a New York holding company. Herbert Fine continues as president of Plasti-Kote and Elias Shapiro is new executive vice-president. Paul [illegible]lman remains as treasurer. Other new officers are: L. Kenneth Mayer, vice-president; Carl J. Schumer, secretary, and Alfred A. Adrian, controller; all are officers of New England Industries. Mr. Shapiro was formerly vice-president and sales manager for Plasti-Kote.

New pressure packaged "Sprayway" anti-static spray of Sprayway, Inc., Chicago. Product is designed to stop static electricity on paper, plastics, cellophane and textiles by pushing button. Printers can spray delivery tapes, strippers, slitters, joggers, conveyors, drive belts, fly sticks, finger grippers, any machinery generating static electricity.

New Risdon Officers

Lawrence F. Heileman and Donald S. Tuttle, Jr., managing director and sales manager, respectively, of the cosmetic and aerosol divisions of Risdon Manufacturing Co., Naugatuck, Conn., were elected vice-presidents of the company last month. Mr. Tuttle was also elected a director.

Donald S. Tuttle

Lawrence F. Heileman

With the company since 1935, Mr. Heileman became managing director of the divisions last year. Mr. Tuttle joined Risdon in 1946 and became sales manager of the aerosol division when it was formed in 1952.

Risdon also announced last month the election of Lewis A. Dibble as executive vice-president. He has been with the company for the past 14 years and was elected vice-president last year. Others elected were Edward Noyack, managing director of the Naugatuck and Waterbury, Conn., plants, as a vice-president, and Malcolm Baldridge of Eastern Malleable Iron Co., Naugatuck, as a director. Risdon manufactures aerosol valves and containers, cosmetic containers, and metal components for industrial and consumer packages.

Aerosol Fund Drive

Solicitation of funds for the 1960-61 program of the Aerosol Market Development and Publicity Committee of the Aerosol Division of the Chemical Specialties Manufacturers Assn. is expected to get underway this month. This was announced recently by Joseph J. Tomlinson, advertising manager of General Chemical Division of Allied Chemical Corp., New York. Mr. Tomlinson is chairman of the Aerosol Market Development and Publicity Committee.

This will be the fourth year funds will be provided by marketers and manufacturers of aerosols and suppliers of materials used in aerosols to carry on a program of publicity and public relations.

The program is handled by Norman Odell Associates, New York public relations firm.

Sprapak in Full Operation

Sprapak Chemicals, Inc., 260 Meserole St., Brooklyn, N. Y., contract aerosol loader and packager, which was established late last year, is now in full operation, according to Jean W. Baer, managing and technical director. The company has facilities for pressure and cold filling, bottle and jar filling, and filling of powder products.

Complete service, from formulation development through manufacture and delivery, is offered by Sprapak. Assistance is also provided for label and package design and merchandising. Other features of the new firm are its quality control program, fully guaranteed work, large stock of component parts for packages, and facilities for long and short production runs.

Production...

EQUIPMENT · MATERIALS · PROCESSING

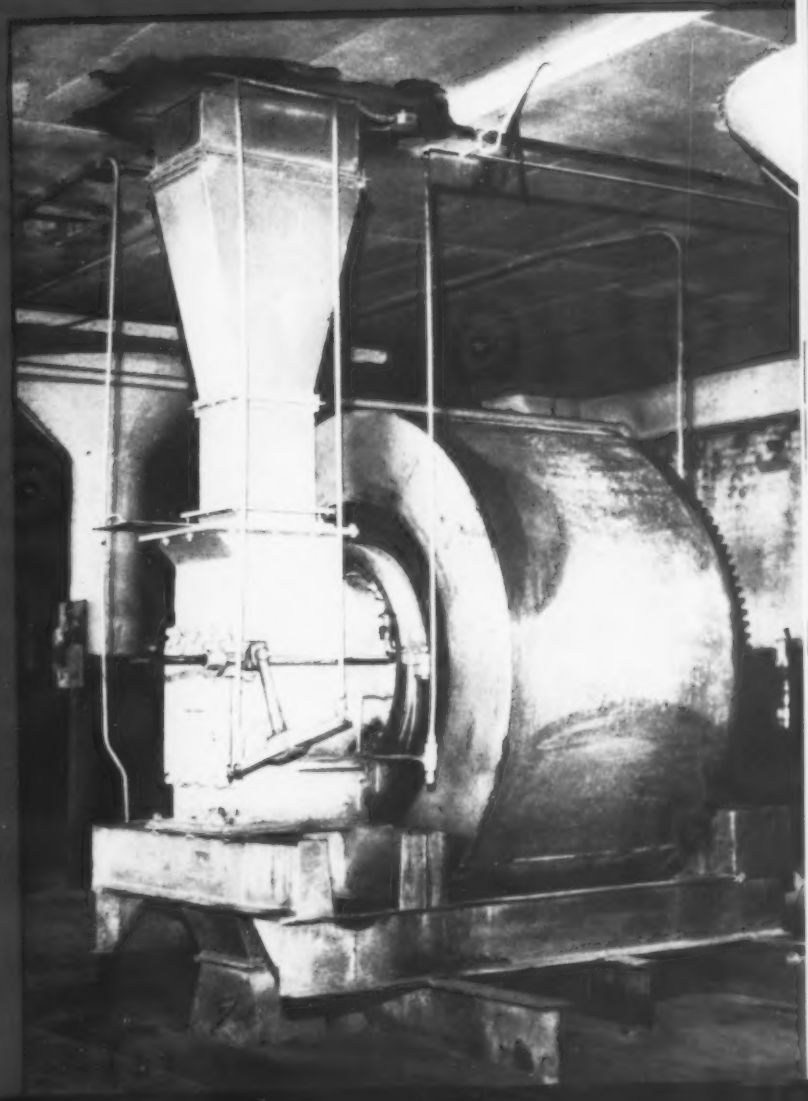
"Detergent Blending Plant"

Soap Plant Observer

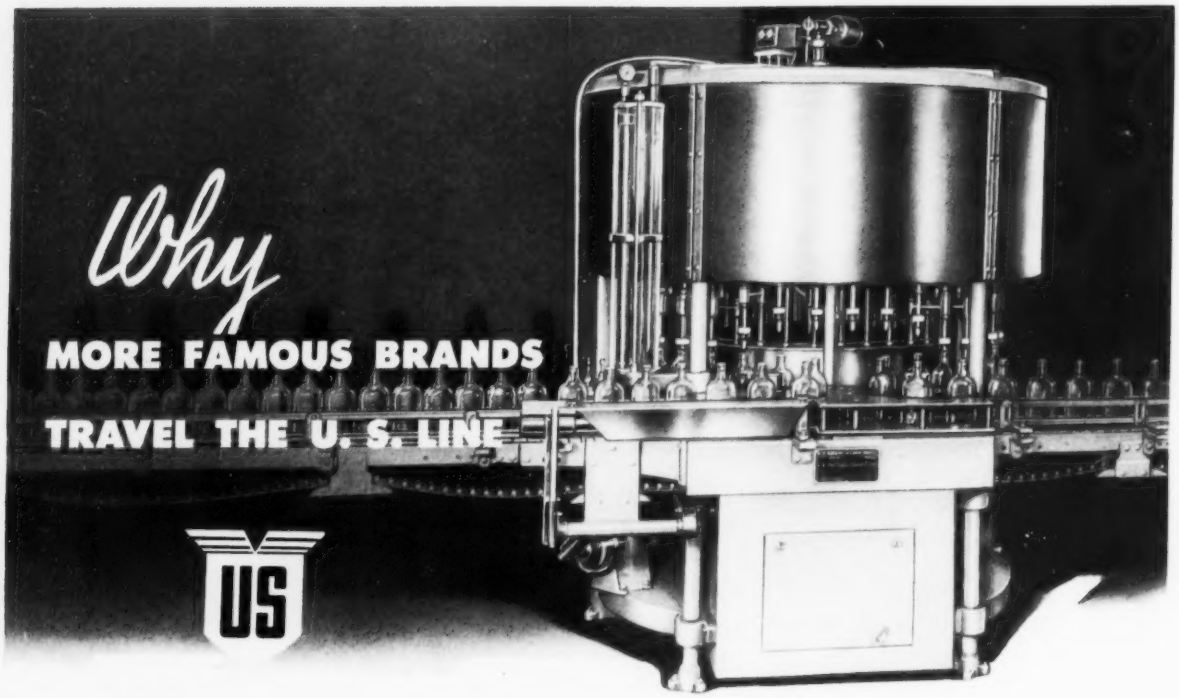
New Patents

Bulletins and Equipment

Book Reviews



One of two 50-cubic foot Sturtevant rotary blenders in Detroit plant of John Sexton & Co., Long Island City, N. Y., wholesale grocery suppliers. Plant produces a line of industrial detergents including machine and hand dishwashing compounds, surgical instrument cleaners, anti-oxidant powders, toilet bowl cleaners and water softeners.



Continuous Filling

MODEL B-2 VACUUM FILLER. Fills 2 containers while filled containers are being removed and empties loaded. Handles containers up to 4½" dia., 13" hi. Interchangeable stainless steel filling stems — plastic available. Will fill directly from drum or supply container on the floor. Portable. Has cord and plug. Write for U. S. "Bulletin B-2."

No Power Required

U. S. SIPHON FILLER. For all liquids, foamy products and products that do not permit agitation. For all containers. Stainless steel tubes. Glass-lined tank. Write for the "Siphon Bulletin."

WHEREVER famous liquid products are packaged, there you are most likely to find a custom-built pace-setter — the U.S. Rotary Vacuum Filler. Throughout the liquid packaging world this great machine is custom-engineered to the requirements of the packaging line it heads. That is why no two U.S. Rotary Vacuum Fillers are ever alike — and why the machine can never be outmoded.

Does your filling operation fit your volume — is it in line with your competition costwise? Invite a U.S. engineer for an informal discussion. No obligation will be implied. Address the home office.

Rotary Filler Bulletin mailed upon request.

U. S. BOTTLERS MACHINERY CO.

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BOSTON • NEW YORK • PHILADELPHIA • LOS ANGELES • SAN FRANCISCO • SEATTLE
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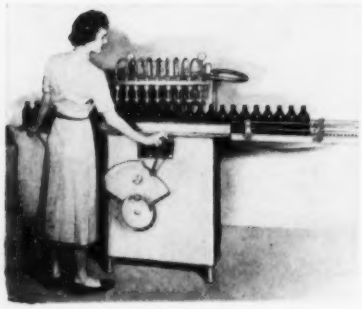
MONTREAL • TORONTO • VANCOUVER • WINNIPEG • SANTIAGO • SAO PAULO • HONOLULU



Most Versatile Multiple Filler

MODEL B-49 STRAIGHTLINE VACUUM FILLER. For liquids and semi-liquids. Fills 4 to 9 containers simultaneously; up to 50 small containers p.m. Lever engages and disengages filling stems, otherwise operation is automatic. Adjustable for all container heights up to 14", miniature and standard bottle finishes, gallon F-style cans, wide mouth jars. Stainless steel is standard; plastic on order. Discharge conveyor optional. Write for "Bulletin B-49."

Feed Containers Faster

THE U. S. CONTAINER FEEDER feeds containers to the conveyor faster, easier, at a steadier pace and a lot cheaper! Just dump 'em on, and let the Feeder take charge. Pays for itself quickly and reduces costs permanently while you get automatic efficiency. Write at once for a "Container Feeder Bulletin."

Detergent Mixing Plant

How John Sexton Co., a wholesale grocery concern, set up its own trouble-free plant to produce a line of industrial detergents.

WHEN John Sexton & Co., Long Island City, N. Y., wholesale grocery suppliers, in 1948 entered the field of industrial detergents it was necessary for the firm to set up an entirely new manufacturing process. Detergents complemented the food line Sexton was marketing to such users as hospitals, schools, airlines, restaurants, and other institutions. At that time the firm introduced a line of maintenance and sanitation chemical specialties consisting of machine and hand dishwashing compounds, surgical instrument cleaners, anti-oxidant powders, water delimers and toilet bowl cleaners.

Manufacturing operations were first established in Pittsburgh, and were moved to Detroit three years later, in 1951. The prime units installed for the manufacture of Sexton's new line of chemical specialties, were two 50-cubic foot rotary batch blenders, engineered and fabricated by Sturtevant Mill Co., Boston. The units were chosen because they provided one to four minute intimate blending cycles for the multiple ingredients. In addition, the blenders were dust-tight, and, of considerable importance, appeared to Sexton officials to be ruggedly constructed. The soundness of the judgement of the Sexton officials is borne out by the fact that a maintenance-free decade later they would overhaul the blenders simply as a "precaution."

T. J. Leon

Now in their eleventh full year of operation, the maintenance required on the units has been routine lubrication. The overhaul was

Sexton employee introduces predetermined amounts of various ingredients directly into Sturtevant 50-cubic foot blender on floor below. This system was developed by Sexton engineers.

Sexton engineered control method. Sexton employee puts Sturtevant rotary batch blender on floor below in operation. Same man who introduces the materials can start machine.

KIEFER NEW DEVELOPMENTS

Ahead of the Times!

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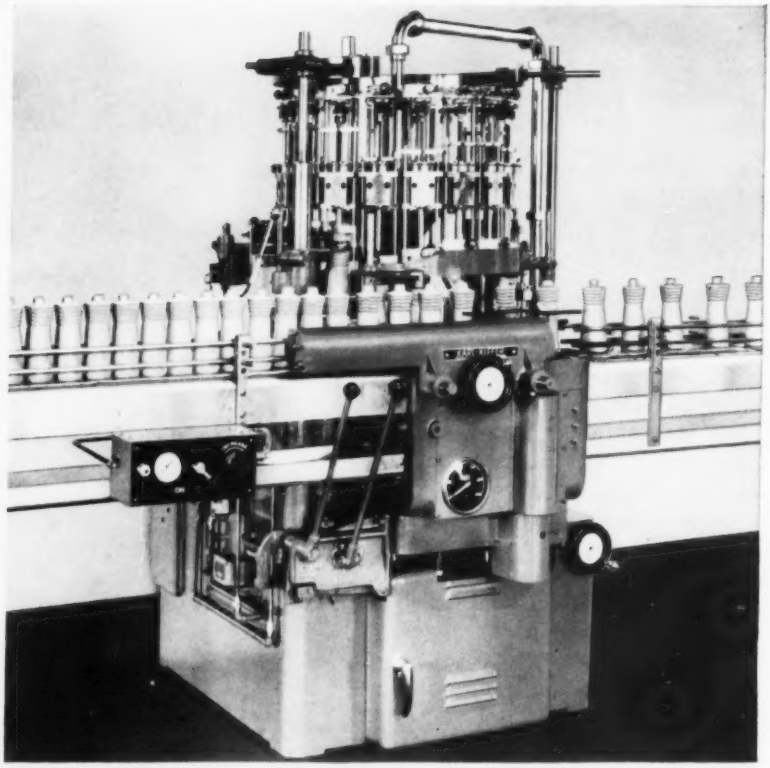
"PIN-POINT"

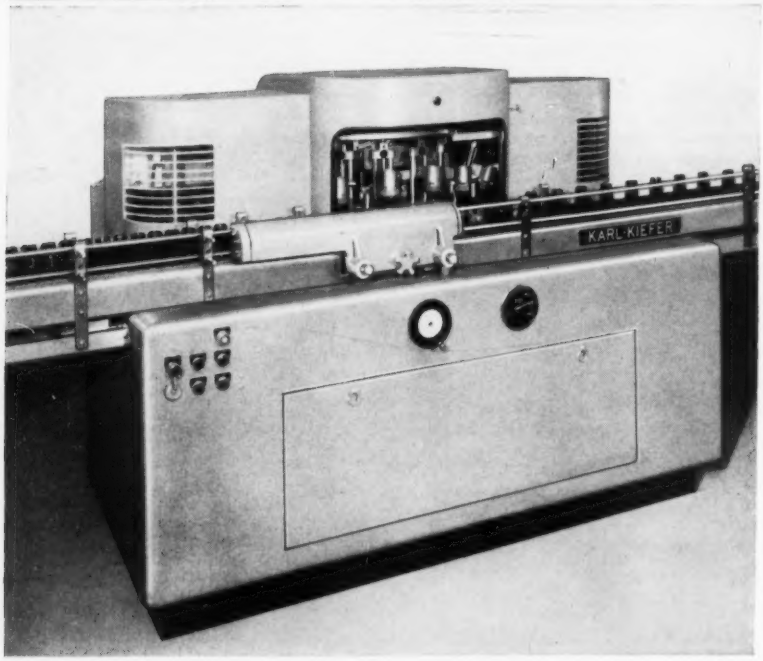
PRESSURE-VACUUM FILLING MACHINES

Fill containers WITHOUT the use of a SEAL. Amazing accuracy in plastics as shown, also in F style or #10 tins. Any speed that you desire.

KIEFER'S MIRACLE INVENTION.

Details available for you . . . write us today.





KIEFER

BOTTOMS-UP BOTTLE CLEANER

Takes bottles from conveyor in a very smooth, rotary motion. Containers are first inverted, then receive a stout blast of filtered, compressed air. Uninterrupted production; no banging, no crushing of glass. Handles bottles as small as a fraction of an ounce or large as a quart. Up to 300 a minute.

The Karl Kiefer Machine Co. 923 MARTIN STREET • CINCINNATI 2, OHIO

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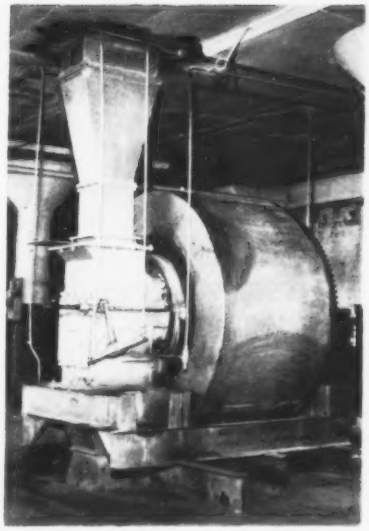
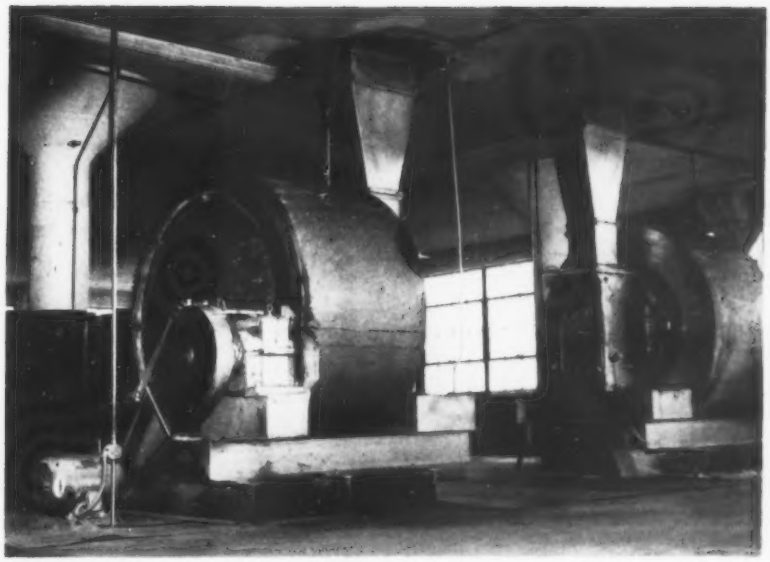


Close-up of front of one of two 50-cubic foot blenders at Sexton plant. Material, fed to blender from floor above, enters and is discharged through gate at front. From here finished product drops to floor below where it is packaged, palletized, and stored. Moving parts are accessible through dogged hatch, foreground, and a second hatch on drum.



Overall view of two one-ton capacity Sturtevant rotary batch blenders at Sexton plant. They have been used for more than ten years without major maintenance. Motor and drive on blender appear in left foreground.

performed, according to branch manager, T. J. Leon, because after "ten years of operation, we like to play safe." He added that the blenders had shown no symptoms of impending maintenance problems.

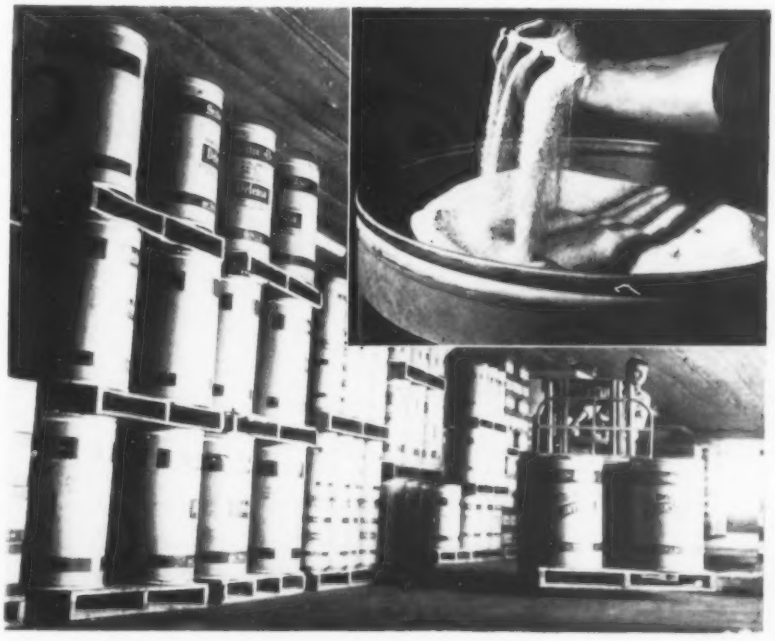
The one-ton capacity dustless rotary batch blenders, Sturtevant's Model #3, are powered by 10 horsepower motors. Sexton uses carbon steel units to blend intimately from three to five ingredients depending upon the material being compounded. Actually, a total of about 25 different ingredients are used in the several formulations of the company. Intimate blending of all ingredients is of prime importance in the end-products.

Sexton buys chemicals in bulk, and weighs out the material to formula requirments on the fourth floor of the building. A special hopper arrangement was engineered by Sexton to allow direct introduction of materials from the bags into the blender on floor below. From this fourth-floor vantage point, the Sexton employee also can put the blender into operation once the ingredients are being cascaded into the unit.

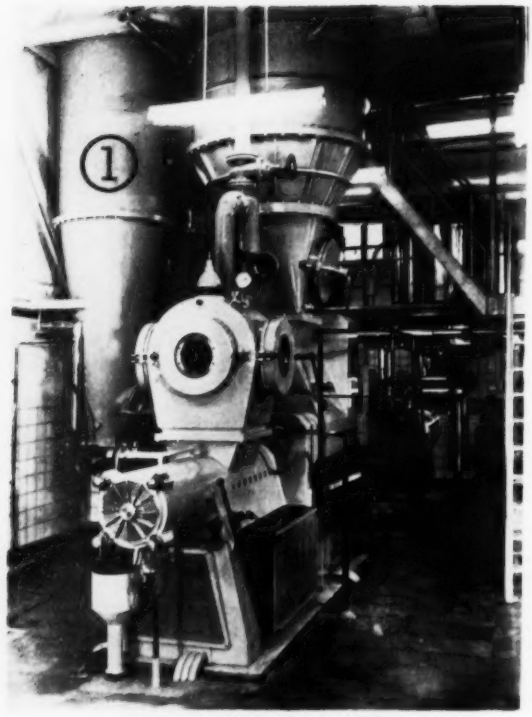
As they enter the blender, the ingredients are seized by scoops, carried to the top of the revolving drum and cascaded to the bottom. At the same time, the revolving drum is actively forcing the ingredients from both ends towards the center, while the swinging chute by which the ingredients enter provides a fourth, lateral mixing action. For one to two minutes these four mixing actions—circular, vertical, and two lateral—blend intimately the multiple ingredients, regardless of weight, density, or fineness. The rounded configuration of the blender eliminates any chance of dead spots and assures complete flowout of all ingredients at time

(*Turn to Page* 171)

Fibre drums of Sexton detergent products are palletized awaiting shipment to institutional users. Free-flowing dishwashing compound shown in inset.



G. MAZZONI, S. P. A.



VACUUM COOLER & DRIER

CONTINUOUS VACUUM PLANTS

For cooling, drying and extruding all kinds of soaps up to 84% T.F.A. Capacities range from 100 to 10,000 Kgs. per hour.

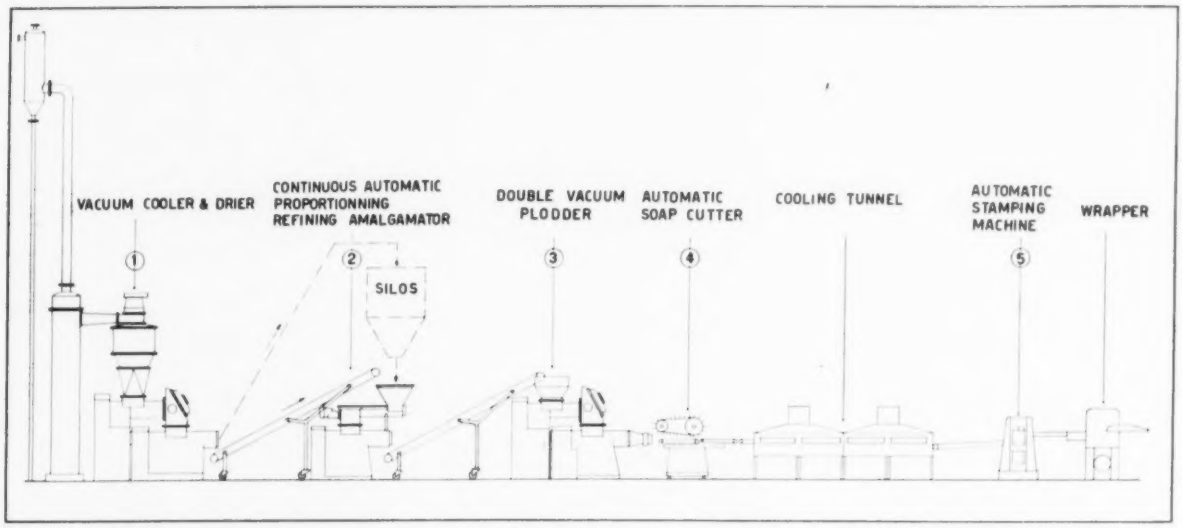
The "MAZZONI" continuous soap plants are outstanding because:

They are economical: Their requirements for steam, water and power are extremely low! Only one operator is required! No scrap soap is produced!

They perform better: 100% "Beta Phase" is guaranteed and gives extra mildness and extra foam even without coconut oil . . . no twisting or distortion!

They are extremely flexible: The same plant also can manufacture pure or built household soaps, flake and powder dried base, etc. from 35 to 84% T.F.A. and more.

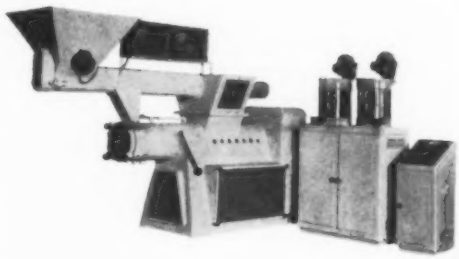
NEW! SPECIALLY DESIGNED LINES FOR SYNTHETIC TOILET BAR!!



Layout of our continuous toilet soap line. Fully continuous or batch processing possible using chips silos. Our line automatically produces fully refined, first class toilet soap with no roll mills. The individual machines that are employed in the above sketch appear on this and the facing page. A complete line or individual units are available with production capacities of 250 to 1500 Kgs. per hour.

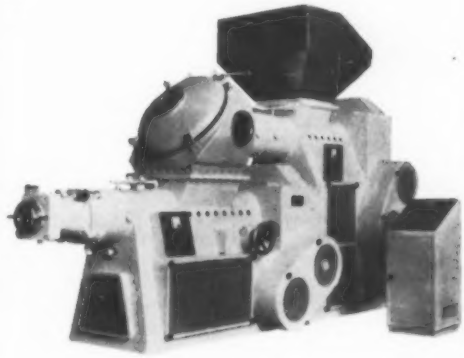
BUSTO ARSIZIO—ITALY

2



CONTINUOUS AUTOMATIC PROPORTIONING REFINING AMALGAMATOR

3



DUPLEX — DOUBLE VACUUM PLODDER
Refiner and Extruder

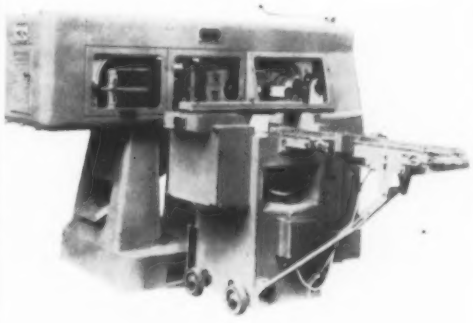
Units shown on this page are available individually. They appear as numbered in production line diagram on facing page.

MORE THAN 250 MAZZONI PLANTS ALL OVER THE WORLD

4

AUTOMATIC SOAP CUTTER "TV"
Adjustable cutting length by means of handwheel

5



AUTOMATIC SOAP STAMPING MACHINE

Type "St-S" stamping speed up to 125 per minute.
Type "St-D" stamping speed up to 240 per minute.
Type "St-O" for capacity molds. Stamping speed from 100 to 200 per minute.

Your inquiry is welcomed! We send, without obligation, data sheets and other literature on this equipment. Let our staff solve your manufacturing problems! We want you to get the most from your raw materials!

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FOR INDUSTRIAL USES

For: Adhesives (A), Disinfectants (D), Inks (I)—Printing and Lithographing, Insecticides (IN), Lacquers, Paints (P), Petroleum by-products (PE), Sprays (S), Varnishes (V) and Waxes (W).

Cover odor N-2(PE)
Cover odor N-22(PE)
Cover odor G No. 1954(A)
Cover odor P. No. 1954(S)
Cover odor P.C. No. 3127(S)
Cover odor P.D. No. 250(P)
Cover odor W.A.S. No. 300(W)
Cover odor W.P. No. 400(W)
Rubber Deodorant No. 56
Cover odor A.D.H. No. 200(A)
Cover odor J.W. No. 2404(W)
Cover odor R.C. No. 604(PE)
Cover odor SASS. No. 1954(A)
Cover odor S.T. No. 275(P)
Floratyl Bouquet No. 1009(I)
Cover odor O.B. Nc. 1714(I)
Eugenol Technical(I)
Cover odor N-43(I)
Cover odor N-4(I) (PE)
Cover odor G.R. No. 27(PE)
Nutralco No. 350(IN)

SOAPS

Oil Bouquet C No. 613
Oil Jasmin No. 613
Oil Mimosa No. 615
Oil Wild Rose No. 55
Imitation Geranium S

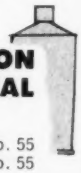
AEROSOL BOUQUETS

Oil Gardenia No. 3125
Mint Bouquet No. 3121
Oil Sweet Pea No. 3123
Oil Wistaria No. 3124
Apple Blossom No. 3122
Oil Bouquet E.T. No. 3126

SHAMPOO ODORS

Oil Bouquet TV No. 55
Oil Clover No. 888
Oil Corylopsis No. 55
Oil Bouquet H.O. No. 8267
Oil Bouquet M. No. 55
Oil Bouquet Narcissus No. 55
Oil Bouquet Wild Rose No. 55
Oil Bouquet Almond No. 8262

IMITATION ESSENTIAL OILS



Bergamot No. 55
Citronella No. 55
Geranium No. 55
Lavender No. 55
Lemongrass No. 55
Neroli No. 55
Sandalwood No. 55
Sassafras No. 55
Ylang Ylang No. 55

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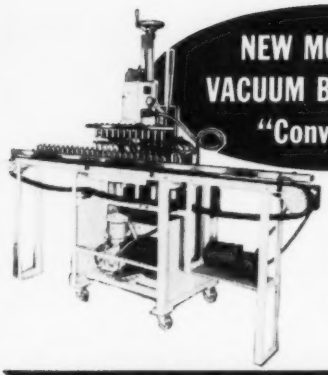
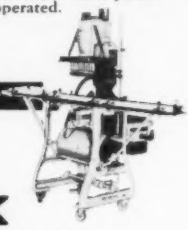
NEW MODEL ESA-C VACUUM BOTTLE FILLER "Conveyorized"



Also available without conveyor

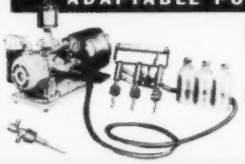
Conveyor has stainless steel, Nylon or steel chain plates. Single wheel spout rack control. Foot pedal operated.

LOW PRICED EMSA FILLER



Six or more open type spouts—with or without reservoir tanks and overflow system.

ADAPTABLE PORTABLE



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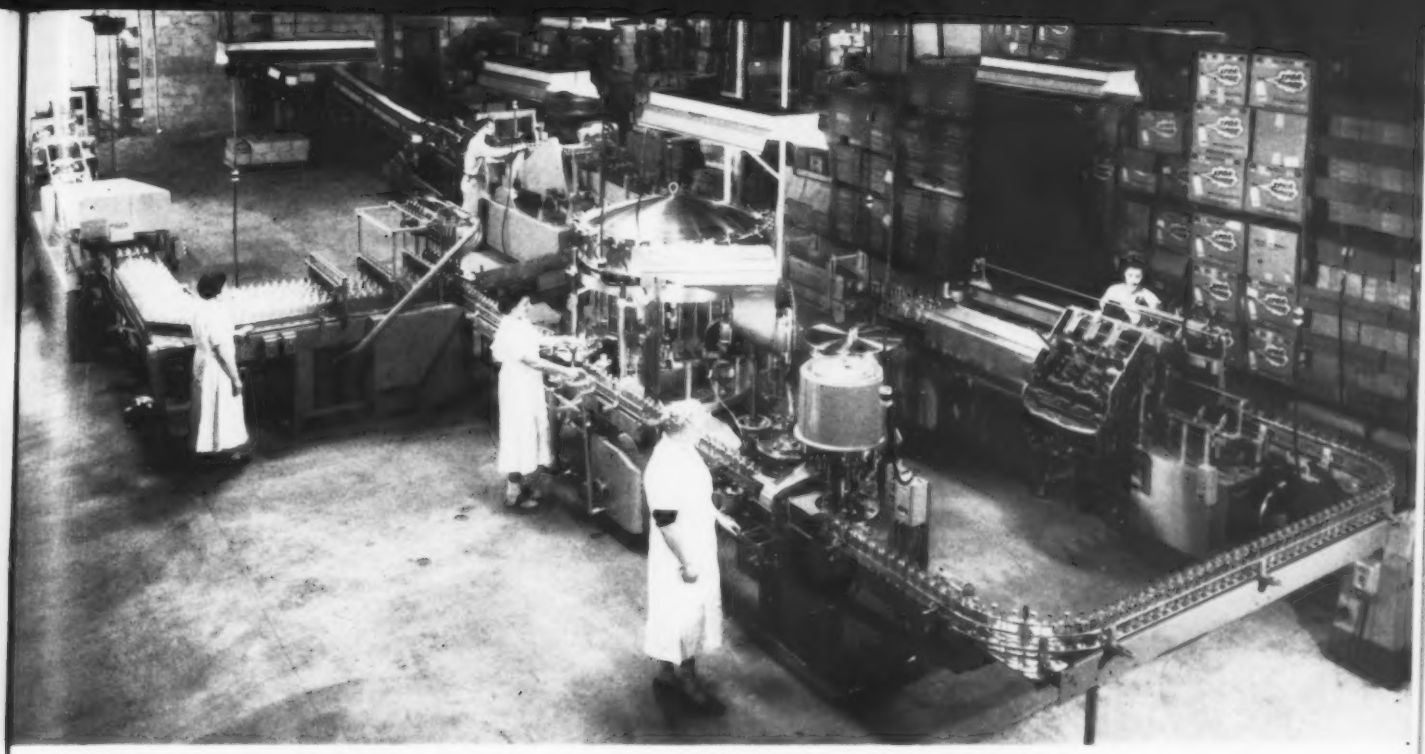


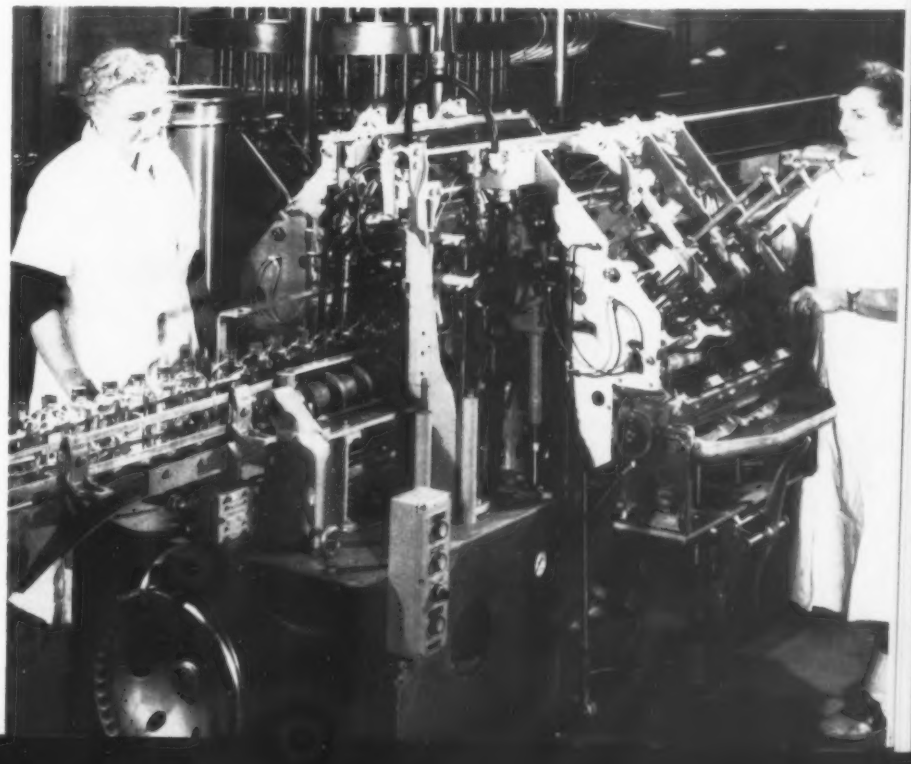
Overall view of new $180,000 liquid filling line recently installed at Hammonds Ferry Rd. plant of John C. Stalfort & Sons, Baltimore contract filling and private label firm. Believed to be fastest, single, completely automatic operation in U. S., line can fill up to 15,000 containers (bottles, jars or cans) per hour. Cartons enter from unloading platform at far left, are automatically opened, and containers removed. Containers then go through cleaning, filling, capping and labelling process, and are repacked in cartons, which are resealed and moved out the door, at right, to another truck for shipment to customer.

Stalfort's Automatic Filling Line

A HIGH speed fully automatic liquid filling line has just been installed by John C. Stalfort & Sons., Baltimore, 92 year old manufacturing chemists, custom packager and aerosol loader. Having a capacity of up to 15,000 containers an hour the new equipment will reduce production costs, speed deliveries, and add versatility to operations, according to Stalfort. The machine handles bottles, jars, and cans, fills liquids ranging over a wide variety of viscosities. From the moment cases of empty containers enter the line until the resealed cartons with containers cleaned, filled, capped and labeled move to a waiting tractor truck, operations are entirely automatic. Under normal conditions and operated at top speed, the line can load a truck an hour.

New equipment set up by Stalfort at its Hammonds Ferry Road plant includes, in addition to the high speed filling line, two stainless steel tanks. Each tank holds 5,200 gallons and is equipped with "Lightnin" type agitators and recirculators. They may be used for storage or to process completely a customer's formula. Use of these tanks adds to the efficiency of the liquid filling line. As an

Key unit in new high speed Stalfort filling line is $35,000 electronically controlled labeler, shown with inspector. Machine detects any changes in tempo along line and automatically adjusts itself to flow rate of containers.



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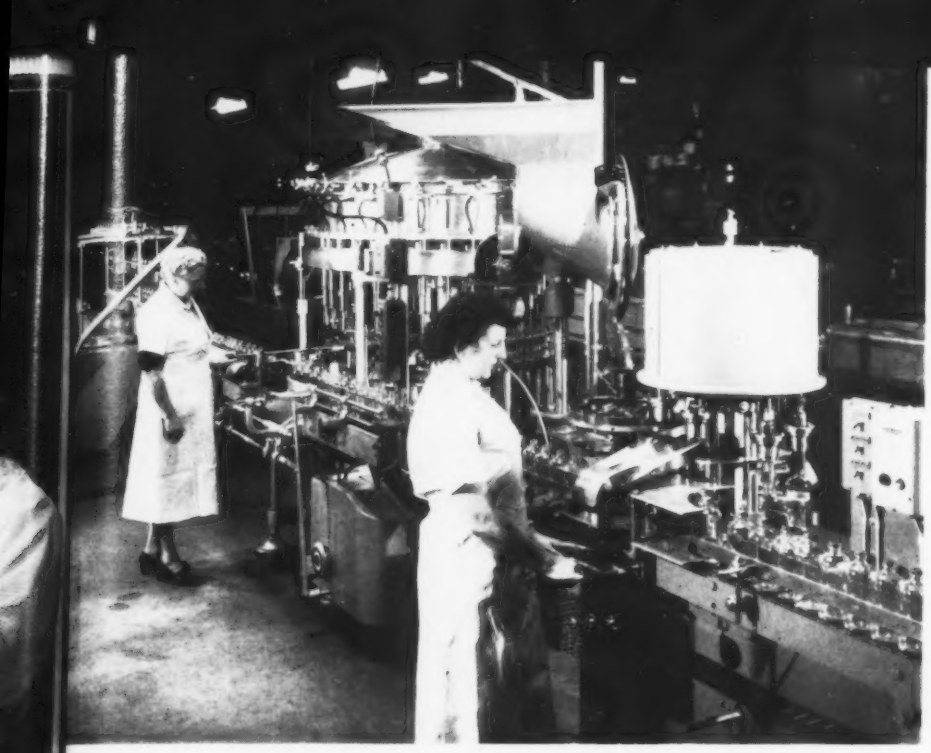
JEFFERSON CHEMICALS

002



Close-up of filling and capping sections of new, high speed, liquid filling line at Stalfort plant. Bottles, which have entered building at left, pass through cleaning unit at right angle turn and continue on to 32-head rotary, gravity, pressure or gravity-pressure filling station (shown with inspector, center). At right is capper. Although line is completely automatic, Stalfort quality control requires that inspectors be placed at strategic points to make sure line is operating correctly and to see that defective packages are removed.

alternative they may be used to feed the aerosol packaging lines located in the same plant. Stalfort Pressure-Pak, Inc., the firm's pressure packaging operation, is one of the oldest and largest custom loaders.

All equipment is made of stainless steel, including pumps, feed lines from tanks to filling locations, and actual filling apparatus. The line features a 32 head rotary filler by Horix Manufacturing Co., Pittsburgh, Pa., which fills by gravity, pressure or gravity-pressure. The rate of operation depends of course on the rate of flow and on container size. Soaps, shampoos, colognes, liquid solvents, household chemical specialties including waxes and polishes, insecticides, and hydraulic brake fluids are among liquid products filled by Stalfort. Containers varying in size from four ounces to one gallon can be processed on the new line, which can handle containers, caps and labels of all shapes.

Designed by Stalfort engineers, the complete installation cost more than $180,000. It takes advantage of a long, wide platform at the Hammonds Ferry Road plant. A truck loaded with cartons carrying empty containers backs up to the start of the line; fifteen feet away another empty truck is waiting.

The carton full of empties goes to the first station, where it is opened, the containers are removed and placed on the main processing line. The empty carton continues to move on a lower level at a slower pace than the main line. At the next station the containers pass through a cleaning unit and then move to the filling station. Capping is the next step. From the capper the containers travel to the labeler which is the "heart" of the entire installation, according to Stalfort. The $35,000 "World Super C.M." labeler by Economic Machinery Co. of Worcester, Mass., fits, glues and applies all shapes and sizes of labels to both sides of the container. A built-in electronic controlling device automatically adjusts the speed of the labeler to the speed of the line.

While the containers move along the top line, the cartons jog along below. After they have been labeled and inspected they meet

(*Turn to Page* 206)

Newly installed stainless steel sanitary tanks are equipped with "Lightnin" type agitators and recirculators. Each tank has a capacity of 5,200 gallons and can be used either for storage or for processing. Contents of tank can go either to high speed liquid filling line or to aerosol packaging lines, which are also installed in the Hammonds Ferry Rd. plant of Stalfort.

New uses are still being found for

GROCO RED OILS & WHITE OLEINES

SPECIFICATION	WHITE OLEINES		RED OILS			
	GROCO 6 USP	GROCO 5L Low Linoleic	GROCO 2	GROCO 4	GROCO 8	GROCO 18
Titre	2° – 5°C.	2° – 5°C.	3°C. max.	4° – 6°C.	8° – 10°C.	18° – 20°C.
Titre	36° – 41°F.	36° – 41°F.	37.4°F. max.	39.2°–42.8°F.	46.4°–50.0°F.	64.4° – 68°F.
Color 5¼"* Lovibond Red	1 max.	1 max.	1 max.	1 max.	1 max.	2 max.
Color 5¼"* Lovibond Yellow	8 max.	8 max.	10 max.	10 max.	10 max.	15 max.
Color Gardner 1933	2 max.	2 max.	—	—	—	—
Unsaponifiable	1.0% max.	1.0% max.	1.5% max.	1.5% max.	1.5% max.	1.5% max.
Saponification Value	199 – 204	201 – 206	198 – 203	198 – 203	198 – 203	204 max.
Acid Value	198 – 203	200 – 205	197 – 202	197 – 202	197 – 202	203 max.
% F.F.A. as Oleic Acid	99.5 min.	99.5 min.	99 min.	99 min.	99 min.	99 min.
Iodine Value (WIJS)	95 max.	90 max.	95 max.	94 max.	92 max.	85 max.
Refractive Index 50° C. (Average)	1.4500	1.4490	1.4505	1.4500	1.4495	1.4485
Total Polyunsaturated Fatty Acids	—	3.5% max.	—	—	—	—
COMPONENT FATTY ACIDS						
C14 Myristic	5%	6%	4%	4%	5%	5%
C16 Palmitic	3%	2%	3%	5%	6%	10%
C18 Stearic	1%	—	1%	1%	2%	4%
C18 Oleic	82%	89%	82%	80%	77%	72%
C18 Linoleic	8%	2.5%	9%	9%	9%	8%
C18 Linolenic	1%	0.5%	1%	1%	1%	1%
MACKEY TEST: Time to reach 105° C.	over 7 hrs.	over 7 hrs.	over 4 hrs.	over 4 hrs.	over 4 hrs.	over 3 hrs.

For more information on A. Gross fatty acids, send for new edition of "Fatty Acids in Modern Industry."

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SOAP PLANT *Observer*

By Willis J. Beach
Technical Service Department,
Sugar Beet Products Co.

RINSABLE types of waterless skin cleaners are being marketed by some formulators because certain customers ask for them and also to gain a sales point by claiming that their product can be rinsed off the skin as well as wiped off. With some reluctance stemming from reasons to be given below, technical men turned their attention to adding a rinsable factor to their products.

On the face of it, it would seem a virtue to have a product that can be rinsed off as well as wiped off the skin, so that the user may choose any mode of removal that suits his fancy. It was recognized, of course, that if users were motivated to rinse off such a product, it might cause a shifting of dispensers away from the work area and into centrally located washrooms or washup areas. This would defeat one of the major economic advantages of the waterless washup—"Bringing the Washroom to the Worker,"—saving unnecessary trips as well as to-and-from time to the washroom. Another important advantage of waterless skin cleaners would be jeopardized, i.e., the opportunity for immediate removal, on the job-site, of irritating soils or tenacious soils such as the epoxy resins which must be removed before the hardening additives have been in action too long.

While developing a rinsable product, laboratory personnel studied, analyzed and use-tested many of the rinsable products on the market. It finally became quite apparent that repeated use of a rinsable cleaner removed the skin's protective mantle faster than it could be replaced. The result was a progressive degradation in condition of the skin. A feeling of

excessive dryness was noted and made a matter of record.

All of these factors led some suppliers to adopt a policy of *providing* but not *promoting* a rinsable waterless skin cleaner. Salesmen were alerted to the situation and cautioned that rinsing off a waterless skin cleaner might cause repercussions at some installations.

In spite of a cautious approach there *were* occasional repercussions and we cite one instance that occurred last year. The variety of chemicals and adhesives used in this plant presents a formidable skin safety problem to the industrial hygienist. It was claimed that a waterless product was causing dermatitis. Since all ingredients in the formula had been cleared dermatologically, it was reasoned that the conditions of mild irritation existing must stem simply from excessive skin dryness.

The trouble was occurring only on the night shift and mostly among a group of workers engaged in hard manual work. Out in the plant the men were coming off the job sites to a rest area where they were questioned about their hands. After examining several pairs of dry, cracked, damaged hands, it was apparent that the practice of rinsing off the product was taking its toll. Their condemnation of the product was pretty rough: "Throw that stuff out of here," were the words of some. We knew that the product had replaced one that cleaned well but had a solvent somewhat troublesome to the workers' hands. Why would the workers want to reject the new product and go back to the one they had been using? In searching for a lead, the men were questioned on a comparison of the two products. One worker provided the clue: "Well, there's one advantage to this cleaner—we can rinse it off and clean up faster. Water would not cut the stuff we used before." It was decided then and there: — no more rinsing at this plant. Dispensers were returned to job-site locations and a standard (non-rinsable) version of waterless skin cleaner was to be supplied in the future.

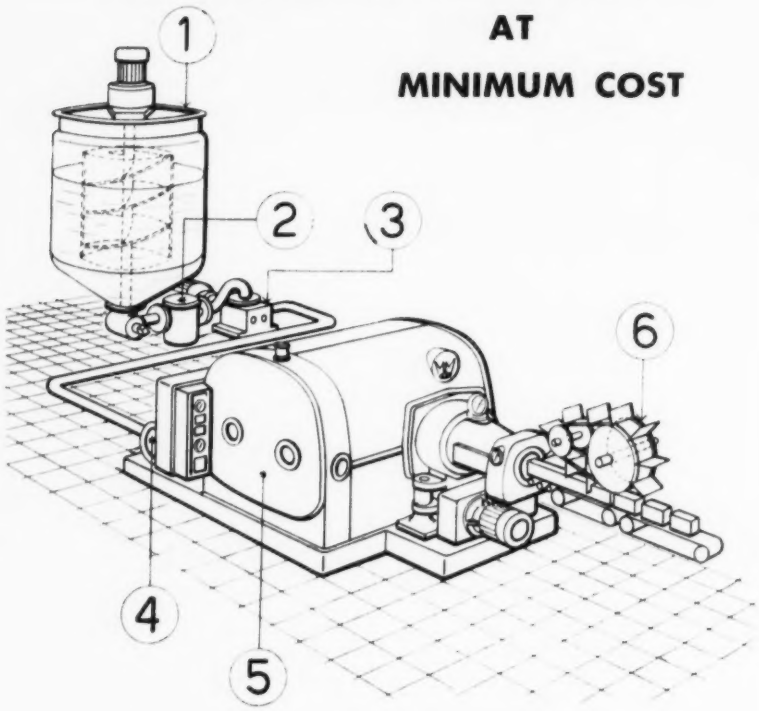
Waterless hand cleaners in general are emulsions of a grease-dissolving oil base with water. They contain emulsifiers and possibly synthetic detergents to aid in soil removal. They are very efficient and remove both water-soluble and oil soluble soils. When they are carefully *wiped* off, there remains a very small residue; but it is enough to maintain sufficient emolliency to protect the hands from excessive dryness. It doesn't take much fatty material to condition the skin and keep it free from dryness. The addition of an emollient (and a humectant, if you please) to this type of product has real meaning.

On the other hand, when this very efficient type of cleaner is made rinsable, so that with further addition of water it is re-emulsified and then is thoroughly rinsed off the hands, *there is nothing left on the hands but the skin* and it takes time for the body to replace the protection by natural means.

It has always been difficult to justify how an oleaginous emol-

The New saix COOLING PLODDER

FOR CONTINUOUS PRODUCTION AT MINIMUM COST



The savings in floor space, labor and production time effected by the SAIX COOLING PLODDER are really impressive. The drawing illustrates the mechanical simplicity of this latest equipment for continuous soap cooling.

(1) The hot liquid soap is drawn from the storage tank through filters (2), (3) and (4), into cooling plodder (5). Here it passes into an annular chamber between a cylinder rotating within a hollow fixed cylinder, both of which are water-cooled. The cooled soap is then compressed by rotating pistons in the collecting chamber. The semi-solid plastic soap then passes to the milling unit and thence to the compression cone, from which it is finally extruded as a continuous bar. It is cut into desired sizes by the continuous automatic cutting machine (6).

Pilot plant available for test at your factory

For further information call or write—

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lient material from a soap can be deposited on the skin while the soap is being used to emulsify and remove dirt and other oily soils from the skin. There is ample proof that *some* materials are substantive and will adhere to the skin from a soap and water wash. The activity of the soap-compatible bacteriostats depends on this phenomenon. Many materials in the colloid range exhibit surface-activity and will be adsorbed to the skin's surface, but this doesn't seem to fit the case of the oily and greasy types of emollients; they are likely to be emulsified and washed away. This seems to apply especially to a rinsable waterless hand cleaner employing a grease-dissolving oil or solvent as part of the system. We do not condemn the rinsable waterless cleaners. But their place is more in the retail market or automotive specialty field where skins are generally healthy and use is less frequent. Their use day after day and often several times during a shift is a mistake—particularly among workers whose hands are damaged because of the nature of their work, or because they are trying to hold two jobs and may not be in the best of health, or because they just don't know how to take good care of their hands.

Frequent Use

Frequent use of a rinsable waterless cleaner by people whose skins are in a marginal or subnormal condition may lead to a condemnation of the product in general, whereas the real trouble is with the mode of use. The trade will do well to consider this and serve the customer accordingly. For competitive reasons suppliers will continue to offer a rinsable product to those demanding it. They are urged to use caution. Due to further improvements in the technology of waterless skin cleaners, it is possible that the industry will one day offer a rinsable product that will not have the adverse effect on the skin characteristic of those on the market today.★★

UNIFORM

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PRODUCTS TO SAVE **YOU** TIME AND MONEY

ARIZONA

Arizona tall oil products never vary...are constantly high in quality. This strict insistence on uniformity saves you time and money in your soapmaking operations. Eliminates adjustment of formulations, keeps your processes constant, the quality of your product consistent. Next time you need tall oil products, do what so many leaders in the soap industry do: contact Arizona.

ARIZONA
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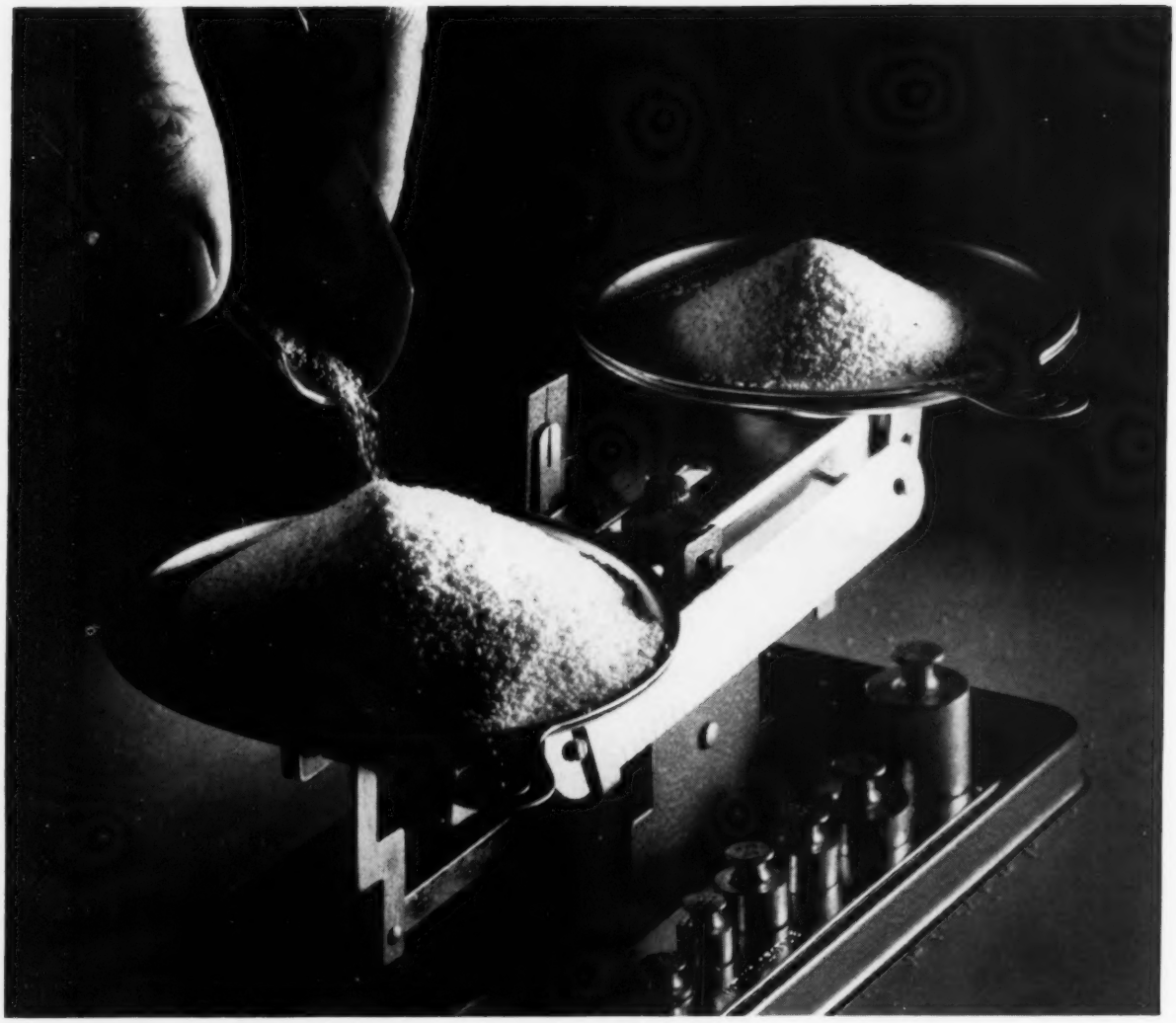
ACINTOL® Products:
ACINTOL D and ACINTOL DLR Special Distilled Tall Oil • ACINTOL FA 1, FA 1 Special and FA 2 Tall Oil Fatty Acids • ACINTOL R Tall Oil Rosin • ACINTOL P Tall Oil Pitch • ACINTENE® Terpenes



Put 30% more bulk into your detergents with spray-dried phosphates

When we spray-dry sodium phosphates we come up with hollow, air-filled granules that are 70% bulkier than conventional phosphates. Sodium tripolyphosphate and tetrasodium pyrophosphate are available in spray-dried forms.

Use this form in your detergents and you can gain from 20% to as much as 30% more bulk without adding a tenth of a penny to your cost.

Dissolve faster Shea® spray-dried sodium tripolyphosphates dissolve two to three times faster than conventional forms, since they have so much more surface area.

No bridging or caking The air content of Shea phosphates keeps them loose and free flowing at all times.

Shea sodium tripolyphosphate is 97% to 99% pure—highest in the industry. For more information on these spray-dried products or other Shea phosphates, write to the address below. Disodium phosphate, trisodium phosphate, sodium hexametaphosphate, and sodium tripolyphosphate are available in conventional density, granular form.

HOOKER CHEMICAL CORPORATION

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Sales Offices: Chicago, Illinois, Jeffersonville, Indiana, New York, N. Y.

HOOKER CHEMICALS PLASTICS

NEW Patents

The data listed below are brief reviews of recent patents. Complete copies may be obtained from the publisher of this magazine: — MacNair-Dorland Co., 254 W. 31st Street, New York 1, N. Y. Remit 50¢ for each copy. For orders received from outside of the United States send $1.00 per copy.

No. 2,920,045. Heavy Duty Liquid Detergent Compositions, patented by William Ralph Hearn, Scarboro, Ont., Allister Neil MacLean, and Frederick William Trusler, Toronto, Canada, assignors to Colgate-Palmolive Co., Jersey City, N. J. Revealed in this patent is a liquid detergent composition in the form of a stable, free-flowing suspension having thixotropic properties which consists essentially of about 5 to 30% by weight of a water-soluble detergent selected from the group consisting of the water-soluble anionic organic sulfate and sulfonate, and non-ionic organic detergents; and about 15 to 45% by weight of a water-soluble inorganic alkaline builder salt in an aqueous alcoholic medium containing about 5 to 20% by weight of a water-miscible saturated lower aliphatic monohydric alcohol, the amount of said inorganic salt being in excess of its normal solubility in the amount of water present and maintained in a permanently non-caking suspension in the presence of about 0.1 to 1% by weight of a substantially water-insoluble material selected from the group consisting of inorganic colloidal silicates, colloidal silica, and polyvalent metal soaps of higher fatty acids; and about 2 to 20% by weight of a water-soluble nitrogen compound selected from the group consisting of urea and thiourea.

No. 2.921,030. Synthetic Detergent Formulations Containing N-Acyl Taurates, patented by Richard D. Stayner, Berkeley, and Henry Y. Lew, San Francisco, assignors to California Research Corp., San Francisco. This invention consists of a detergent composition consisting essentially of a water-soluble N-acylaminoalkane sulfonate detergent derived from C_{16}–C_{18} hydrogenated tallow fatty acids, a water-soluble C–C_{18} monoalkyl benzene sulfonate detergent, the former being present in an amount of about 15% to 50%, by weight, and the latter 85% to 50%, by weight, of the total of the two, and, as foam-improving agent, from about 1% to 5%, by weight, based on the total solids content of said detergent composition, of para-n-dodecyl phenol.

Also covered is a built detergent composition consisting essentially of from about 10 to 40% by weight of the detergent composition defined above and 90 to 60% by weight of water-soluble inorganic salt builders.

No. 2,921,909. Substituted Carbamide Detergent Composition, patented by Lloyd I. Osipow, Monsey, and William C. York, Westbury, N. Y.; Ruth M. York, administratrix of said William York, deceased, assignors to W. R. Grace & Co., New York. The patent covers a synthetic detergent composition consisting essentially of from about 2 to 50% of an N-urea glucoside mono-fatty ester and from about 50 to 98% of a least one material selected from the group consisting of water soluble alkali metal phosphates, alkali metal sulfates, and an alkali metal carboxymethyl cellulose.

No. 2,921,907. Soap Stabilization, patented by John G. Kleyn, Creve Coeur, Mo., assignor to Monsanto Chemical Co., St. Louis, Mo. The invention teaches a method of improving the light stability of an antiseptic detergent composition comprising a detergent soap containing a minor proportion of a phenolic antiseptic effective in the presence of soap and selected from the group consisting of thiobis(chloro phenol) antiseptics, methylene-bis(chloro phenol) antiseptics and 2,2′-thiobis p-cresol, which antiseptic discolors the soap when the composition is exposed to light which comprises incorporating therein a small amount sufficient to increase the light stability, of a mild reducing agent selected from the group consisting of sodium sulfite, sodium bisulfite and sodium hydrosulfite together with a small amount sufficient further to increase the light stability of an ultra violet absorber selected from the group consisting of 2-hydroxy 4-methoxy benzophenone, 2-hydroxy, 4,4′-dimethoxy benzophenone, isobutyl p-amino benzoate and n-butyl p-amino benzoate.

No. 2,916,526. Recovery of Saturated Perhalogentated Fluorine Containing Hydrocarbons, patented by Charles F. Baranauckas, Niagara Falls, N. Y., and Donald H. Campbell, Niagara-on-the-Lake, Ont., Canada, assignors to Hooker Chemical Corp., Niagara Falls. The invention consists of a process for reclaiming water-insoluble saturated perhalogenated fluorine-containing hydrocarbons which are liquid at temperatures of about 150° C., and are resistant to strongly oxidative conditions, from mixtures of said perhalogenated fluorine-containing hydrocarbons contaminated with up to 25% by weight of hydrocarbon contaminants which comprises: reacting said hydrocarbons contaminated perhalogenated fluorine-containing hydrocarbon with a strong sulfonating agent at a temperature below that at which said perhalogenated fluorine containing hydrocarbon is attacked by the sulfonating agent, until the hydrocarbon contaminants have been converted to water-soluble products, and recovering the uncontaminated water-soluble saturated perhalogenated fluorine-containing hydrocarbons from the reaction mixture.

No. 2,911,372. Lanolin - Ammonia Composition, patented by Floyd M. Mizell, Pittsburgh, and Harry G. Austin, Sr., Mars, Pa. Described is a household ammonia composition comprising essentially household ammonia within the range of substantially 100 to 200 parts by volume and a dispersed lanolin concentrate substantially 1 part by volume, said concentrate comprising lanolin in an amount of substantially 25% by weight, non-ionic nonyl polyoxethylene amine containing 44 mols of ethylene oxide in an amount of substantially 10% by weight, a non-ionic nonyl phenyl polyethylene glycol ether with 7 mols of ethylene oxide in an amount of substantially 8% by weight, and the remainder being composed of a petroleum oil that is colorless, odorless and leavess no residue on evaporation.

No. 2.921,910. Neutralization of Crude Dry-Cleaning Soaps, patented by George W. Ayers, Chicago, assignor to Pure Oil Co., Chicago. A process is described of preparing a dry-cleaning soap which is not harmful to clothing dyes which comprises neutralizing anhydrous liquid sodium mahogany sulfonates containing traces of free alkalinity consisting solely of the same alkaline material from which the sulfonates were derived, by agitating the liquid sulfonates and continuously bubbling anhydrous carbon dioxide therethrough at a temperature of about 70° F., at a rate of one liter of carbon dioxide per minute per 1000 g. of sulfonates for a period of five minutes to produce a substantially neutral liquid as measured by a phenolphthalein indicator solution.

No. 2,921,885. Antibacterial Composition, patented by Alexander Wayne Bouchal, Fair Lawn, N. J., assignor to Colgate-Palmolive Co., Jersey City, N. J. Covered is an antibacterial composition comprising an antibacterial quaternary ammonium compound and a substantially saturated aliphatic acyl amide of a saturated aliphatic monoaminocarboxylic acid compound having 2 to 6 carbon atoms, the aliphatic group thereof having 10 to 18 carbon atoms, the amide being present in amount sufficient to improve the antibacterial action of the quaternary ammonium compound when the composition is dissolved in an aqueous medium.

No. 2,921,886. Dentifrice Composition Comprising an N-Higher Alkyl Morpholine, patented by Gloria Christin Panepinto, Bayonne, N. J., assignor to Colgate-Palmolive Co., New York. A dentifrice preparation is introduced comprising a polishing agent and about 0.05 to 10 per cent by weight of an N-alkyl morpholine compound, said alkyl group having 8 to 16 carbon atoms.

To make a good shampoo . . . you need CARBIDE'S Ethanolamines

Good detergent action, mild alkalinity, and bland skin action—are three reasons why soaps based on mono-, di- or triethanolamine are used to make fast selling hair shampoos. For example, a good shampoo is made from a coconut oil soap of triethanolamine which combines excellent detergent, lathering, and rinsing properties.

Amine soaps, made with triethanolamine or mono- and triethanolamine, are easily emulsified. Thus, excellent products can be prepared by simplified and less-costly emulsification procedures. Also, soaps based on CARBIDE'S ethanolamines are non-corrosive and have excellent storage stability.

You can obtain valuable technical information and suggested formulations for solvent emulsions, "soluble" oils, wax emulsions, and oil and wax polishes by calling your CARBIDE Technical Representative. Or, write Department B, Union Carbide Chemicals Company, Division of Union Carbide Corporation, 30 East 42nd Street, New York 17, New York. In Canada: Carbide Chemicals Company, Division of Union Carbide Canada Limited, Montreal.

UNION CARBIDE CHEMICALS COMPANY

UNION CARBIDE

Products and PROCESSES

Dry Ammonium Stearate

Ammonium stearate in powder form has just become available from Boston Chemical Products Co., 261 Franklin Street, Boston 10. Savings in packaging, shipping and handling costs are claimed for ammonium stearate in this finely divided form. The material comes packaged in 50-pound multi-walled paper bags. A free flowing powder in such a package is easier to handle than the conventional thick paste, according to Boston Chemical.

★

New Antistalling Agents

The use of cationic surface active agents as antistalling gasoline additives is being developed by Armour Industrial Chemical Co., Chicago. The "Duomeens" are N-alkyl trimethylene diamines; the "Ethomeens" are tertiary amines having a fatty alkyl group derived from fatty sources with from 12 to 18 C atoms and two polyoxyethylene groups attached to the nitrogen, and "RD-3063-P" is a new type of fatty nitrogen derivative. These chemicals are said to act in low concentrations and at reasonable cost as anti-icing and anti-fouling agents, detergents, and corrosion inhibitors.

A 15-page report on "Gasoline Anti-Stalling Additives" has just become available from Armour Industrial Chemical Co., 110 North Wacker Drive, Chicago 6.

★

Biocidal Cationic

A cationic surface active agent claimed to retain high biocidal activity at hard water levels up to 750 ppm was introduced recently by Onyx Oil & Chemical Co., Jersey City, N. J. Covered by U. S. Patent No. 2,676,986, the product is designated "BTC-2125," comes in a 50 per cent aqueous solution. "BTC-2125" quaternary ammonium compound is suitable for formulation of a wide variety of liquid and solid germicides, and multi-purpose cleaner-sanitizers and disinfectants, according to the manufacturer.

In view of Federal and State requirements concerning the hard water tolerance of quaternaries intended for use in dairy, restaurant, and food processing establishments, "BTC-2125" 's high tolerance is a great advantage to the formulator, Onyx claims.

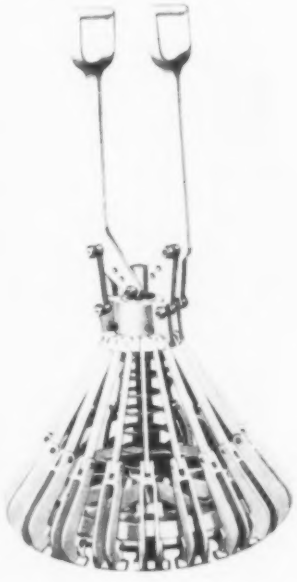
★

Caustic by New Process

"The first significant advance in dry caustic soda production in nearly 50 years" was claimed by Dow Chemical Co., Midland, Mich., recently when it announced availability of anhydrous caustic made by a continuous process. Greater control of product quality is said to be one of the advantages of the new production method over the conventional batch process.

At the same time Dow announced a new package for its anhydrous caustic soda and sodium orthosilicate. These bulk materials are now shipped in fiber drums designed to cut freight and handling costs and to minimize product contamination from iron, rust, or paint. The new containers are described as "full-open head type lined with polyethylene-coated aluminum and liquid tight bottom construction."

Grotnes Machine Works, Inc., 5454 N. Wolcott Ave., Chicago 40, recently introduced a new line of closing tools for the standard five gallon steel pail. The new tool is reported to be lighter in weight than previous equipment and provides pressure control in the clinching of cover lugs.



★

New Heavy Duty Cleaner

A new heavy duty cleaner designed to remove compounded carbon and asphalt soils from processing equipment has just been introduced by Oakite Products, Inc., 19 Rector Street, New York 6. "Oakite Composition No. 19" is a solvent-alkali emulsion cleaner suggested for use by circulation through closed systems. Use concentrations range from 12 to 16 ounces per gallon of water at temperatures up to 210°F. and pH in use is 13.5 to 14.0, at the top of the alkaline scale. The compound may be used on steel and brass, but its high alkalinity precludes application to other metal surfaces. It may also be used to clean well ventilated open tanks at temperatures of up to 150°F.

★

New Magcobar Booklet

A new 20-page booklet from Magnet Cove Barium Corp., (Magcobar), Houston, Tex., describes the properties of its attapulgite products processed for use by insecticide formulators. Also outlined are the clay's uses in several other industries for plant maintenance as an oil and grease absorbent product.

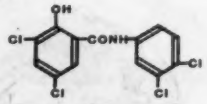
★

Olefins Product Guide

A four-page product guide has just been issued by Union Carbide Olefins Co., 30 East 42nd Street, New York 17. The folder tabulates gases; chemicals including naphthalene; lime products; and acetylene and calcium carbide, giving properties and shipping information. Olefins Co. is a recently formed division of Union Carbide.

Irgasan BS200

tetrachlorosalicylanilide*



For use in:	Controls gram positive
deodorant soaps	and gram negative bacteria.
hard surface sanitizers	Inhibits fungal growth.
household specialties	Substantive to skin, textiles.
laundry detergents, rinses	Easy to demonstrate or trace.
dry cleaning	(fluoresces under ultra-violet light).
hospital cleaners	Economical.
anti-dandruff shampoo	Write for literature
surgical soap	and samples today.

* U. S. Pat. 2703332

Geigy

Geigy Industrial Chemicals

Division of Geigy Chemical Corporation
Saw Mill River Road, Ardsley, N. Y.

Book Reviews

Detergent-Sanitizers in Dairy Sanitation

CLEANING, sanitizing, and good housekeeping are the corner stones of successful dairy farming. How to attain these aims is the subject of *Quality Control of Market Milk*, by N. E. Lazarus. The book is subtitled "a practical manual for the rapid classification and detection of organisms affecting the quality of milk and dairy products; with information as to their source, action on milk, and their control."

This revised and enlarged edition gives information on modern developments in cleaning and sanitizing materials and methods. These changes have been engendered partly by modern milking and processing methods and equipment and partly by new microbiological and chemical knowledge. Adoption of one step cleaning-sanitizing compounds and the use of iodophor-iodine complexes in dairy cleaning are cited as examples of comparatively recent advances.

Three types of cleaners—alkalies, synthetic detergents, and acids—are in general use in the dairy. Alkalies include phosphates, silicates, and carbonates, which emulsify fats and dissolve proteins. Silicates are used to prevent corrosion of aluminum and tin surfaces. Other ingredients are added to serve special purposes such as sequestering agents to prevent formation of insoluble calcium and magnesium salts. Colloids are included as soil suspending agents. Polyphosphates reduce milk stone and hard water scale formation.

Synthetic surface active agents act as wetting, cleaning, and penetrating agents and promote free rinsability of the soil. Additional advantages are chemical stability, no impairment by acid or alkali, nor by hard or saline waters.

Acid type cleaners may be based on organic acids or phosphoric acid plus a synthetic detergent. In such formulations the acid dissolves milk stone and hard water scale or prevents their formation. The detergent does the actual cleaning.

Choice of the detergent depends on the nature of the soil, surfaces, and a number of other factors. Having dealt with the cleaning operation the author turns to the sanitizing phase. " . . . no sanitizer, regardless of its ability to act in the presence of organic matter, will effectively treat a surface on which there is milkstone or hard water scale. The scale must be removed before efficient sanitation can be achieved," Dr. Lazarus points out.

Having reviewed steam and hot water sterilization, use of hypochlorites, and the advent of cleaning-sanitizing formulations of quaternaries with detergents, the author devotes several pages to the subject of iodophor-iodine complexes in the dairy industry.

Quality Control of Market Milk, by N. E. Lazarus, Lazarus Laboratories, Inc., Division of West Chemical Products, Inc., Long Island City, N. Y. Second Edition, published 1960 by Olsen Publishing Co., Milwaukee, Wis. 236 pages, cloth bound, eight inches by 5½ inches.

—★—

New Pest Control Handbook

The third edition of "Handbook of Pest Control" by Arnold Mallis has just appeared, its girth increased by 100 pages over the 1954 edition. The author has completely revised and brought up to date the information contained in the 1132-page text. New toxicants, new methods and the ever-spreading problems of resistance receive attention. The pick of older methods and materials has been retained with the growing insect resistance to some modern toxicants in mind.

The book, like its predecessors, deals mainly with household and industrial pests, their life cycles, habits, indentification and control. It is generously illustrated with over 200 drawings and photographs.

The author has intended the handbook "as an introduction to household pests for those unversed in the pursuit of vermin and as a reference work for those accomplished in the art". The information it conveys should prove useful to pest control operators; to insecticide manufacturers, marketers, and users; to entomologists and to students of entomology.

Handbook of Pest Control by Arnold Mallis, Gulf Research & Development Co., Pittsburgh, Pa., third edition, published 1960 by MacNair-Dorland Co., 254 W. 31 St., New York 1, N. Y. Cloth bound, 6½ by 9¼ inches, pp. 1132, price $12.50 per copy.

—★—

Testing Insect Toxicants

The second volume of "Methods of Testing Chemicals on Insects" edited by Harold H. Shepard is part of a series originally planned by the former Chemical-Biological Coordination Center of the National Research Council. This agency had intended to publish a manual dealing with the effects of chemicals upon insects.

The first volume, reviewed in *Soap & Chemical Specialties*, Oct. 1958, was devoted mainly to techniques for determining effects of chemicals upon the life processes of insects and to laboratory methods for exposing insects to toxic chemicals. This present volume contains studies on the factors affecting experimental results and a number of papers on the screening of candidate insecticides for specific purposes.

Among the book's 13 chapters are a discussion on screening space sprays, including aerosols, against flies and cockroaches con-

(*Turn to Page* 205)

You can always depend on prompt delivery of U.S.I. ethyl alcohol from one of these warehouse points

When U.S.I. is your supplier of ethyl alcohol, delivery is always prompt—for this reason: U.S.I. maintains a nationwide network of bonded warehouses. Chances are, one of these warehouses is within less than a day's delivery of your plant.

In addition, long experience in supplying ethyl alcohol enables U.S.I. to offer you helpful assistance in handling alcohol paperwork—permits and records. U.S.I. technical assistance, too, is based on long experience in all applications for ethyl alcohol.

With dependable U.S.I. delivery and service you can avoid fluctuations in your ethyl alcohol stock . . . tie-up of valuable storage space . . . needless complication of inventory records . . . the hazard of being caught short when you have a major emergency need.

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New Filling Attachment

A bottom filling attachment recently introduced by National Instrument Co., 2701 Rockwood

Ave., Baltimore 15, Md., adapts the firm's "Filamatic" portable filler for the filling of foaming liquids. With the attachment, filling nozzles are automatically lowered into the empty containers and then raised as the liquid level rises. Rate of rise can be adjusted to coincide with the filling speed thus eliminating or minimizing foaming, the company says. The attachment can be used with any size container up to 16 ounces. Cost, including installation on any dual type "Filamatic" liquid filler, is $355, f.o.b. Baltimore.

—★—

Pfizer Product Bulletin

Citric acid, gluconic acid, and their derivatives, as well as oxalic acid, as basic ingredients of cleaning formulations are discussed in a 20 page technical bulletin (No. 102) issued recently by Chas. Pfizer & Co., 630 Flushing Avenue, Brooklyn 6, N.Y. Entitled "Pfizer Products for Chemical Cleaning," the brochure deals with bottle washing, alkaline derusting and paint stripping, general chemical cleaning and other specialized operations. The information is supported by references.

—★—

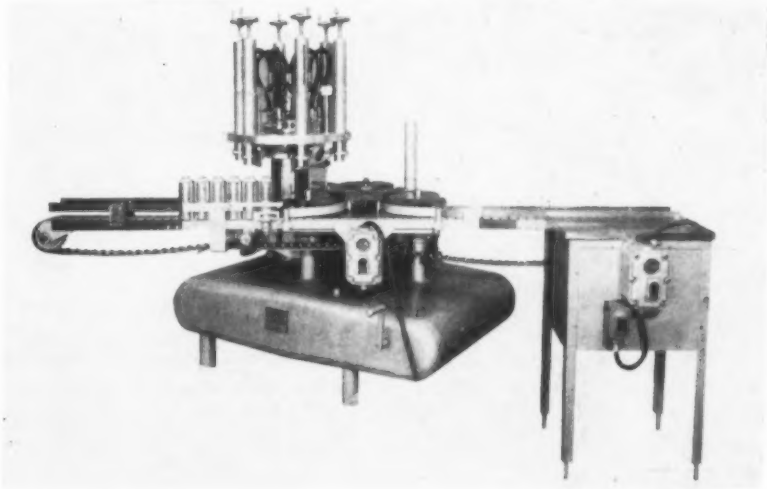
New Kartridg Pak Filler

A new rotary pressure filler for aerosol packaging will be introduced by Kartridg Pak Co., Franklin Park, Ill., at the National Packaging Exposition in Atlantic City, N. J., Apr. 4-8, it was announced last month by George W. Heath, president. The machine is immediately available in combination with either a vacuum crimper or tip applicator and both versions are reported to have production speeds of up to 100 units per minute. In the vacuum crimper combination, the crimping head will not operate unless a vacuum can be drawn on the can, thus preventing any attempt to close a can on which the valve does not seat properly. Pressure filling is accomplished in the remaining part of the cycle, accoring to the company.

The tip applicator is designed to speed up the operation of affixing the pressure release button to the filled can, which is normally done by hand.

At the Packaging Show, Kartridg Pak also will display laboratory eqiupment for pre-testing and quality control, and its "800" series automatic straight line filling unit. The firm makes aerosol packaging equipment for production runs of from 2,500 to 2.5 million units annually.

New Kartridg Pak rotary filler for aerosol packaging.



Detergent Mixing

(*From Page* 153)

of discharge. Dust cannot "float" in the unit and materials cannot collect.

When the formulated product is discharged, it exits from the same dual entry-discharge gate through which the multiple ingredients entered minutes before. It is discharged directly to a hopper on the second floor, from which it is packaged, palletized, and stored.

Sexton employs two of these one-ton capacity Sturtevant rotary batch blenders because "Invinso," the company's prime dishwasher detergent, is dyed orange. This major product is blended in the same unit at all times. All other products are white, and are processed in the second blender.

A change was made in the controls of the Sturtevant unit. They were adapted in order that the unit could be controlled from the fourth floor, where ingredients are introduced directly into the blender. Otherwise, the original units are, as they were 11 years ago, the same rotary batch blenders with the same inner scoops, the same carbon steel drums.

Because of the rugged reliability of the Sturtevant units, Sexton is able to offer consistently high-quality, close tolerance blended detergent products without problems of downtime, its resultant labor waste and production costs. Should the units require maintenance at any time, they are so constructed that all movable parts are fully accessible in a minute's time.★★

From DID ANYONE BRING AN OPENER?, by permission of Harper & Brothers and Scott Meredith Literary Agency, Inc.

"Tell me, do you always specify Victor Sodium Phosphates?"

It's not just sweet talk. Smart buyers know from experience there's much to be gained when they specify Victor chemicals. For one thing, Victor offers a complete selection of sodium phosphates: hemi, mono, di, tri, tetra, tripoly, acid pyro, and chlorinated T.S.P. They know, too, Victor makes fast delivery of these top quality chemicals from five different locations and many additional warehouse points. Whether you're interested in savings from bulk shipments or economies from mixed truckloads of sodium phosphates, you'll find, "It pays to see Victor."

Victor Chemical Works, *Division of Stauffer Chemical Company*, Dept. SC-3, 155 N. Wacker Drive, Chicago 6.

News...

PEOPLE · PRODUCTS · PLANTS

Detergent Sales Again Up

* * *

Nelson J. Gothard Dies

* * *

Johnson Advances Grant

* * *

Armour Appoints Racine

Howard J. Grady, formerly executive vice-president, has been elected president of California Spray-Chemical Corp., Richmond, Calif. He succeeds Arthur W. Mohr, who has retired. Mr. Grady has been with Calspray since 1926. (Turn to page 175 for details.)

SILICONE NEWS from Dow Corning

For That Deep-Gloss Look

Formulate Finer Polishes With Dow Corning Silicones

Give your polishes that extra "sell" . . . simply by incorporating adequate amounts of Dow Corning Silicones in your formulations.

In a highly competitive market, you can provide numerous advantages for the end user — including deeper, richer gloss — through the use of Dow Corning Silicones. Ease of application is a benefit customers remember the next time they buy. Silicones also help your polish spread and wet the surface, resulting in better and faster film formation. And, of course, silicones provide oxidation resistance and water repellency surpassing any other polish ingredient . . . which means better and longer lasting protection for autos, furniture, and appliances — virtually all household items of wood, glass, or metal.

In summary, silicones in your polish assure a quality look, an effortlessness of application, a true durability. All the things that bring your customer back for more!

Another point to remember: you gain again when you say "silicones" on your label. People are increasingly aware of the protection silicones provide, and you cash in on this prestige.

For the latest and most complete technical information on Dow Corning Silicones for different types of household, industrial, or specialty polishes, contact our nearest branch office or write Dept. 2503.

Your nearest Dow Corning office is the number one source for information and technical service on silicones.

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Dow Corning CORPORATION
MIDLAND, MICHIGAN

ATLANTA BOSTON CHICAGO CLEVELAND DALLAS LOS ANGELES NEW YORK WASHINGTON, D. C.

News

Grady Heads Calspray

Howard J. Grady *(See cut on News flyleaf, page 173.)* was elected president early last month of

Arthur W. Mohr

California Spray-Chemical Corp., Richmond, Calif., succeeding Arthur W. Mohr, who has retired. Executive vice-president at the time of his election, Mr. Grady joined Calspray in 1926 as a research entomologist. Calspray, manufacturers of the "Ortho" line of insecticides, fungicides, fertilizers, and weed killers, is an operating company of Standard Oil Co. of California. Mr. Mohr began with Standard Oil in 1922 and was appointed a director of Calspray in 1957 and later was elected president. He also retires as vice-president of California Chemical Co., a Standard Oil subsidiary and parent management organization for Calspray, Oronite Chemical Co.

—★—

New Babbitt Ad Agency

Advertising for all products of B. T. Babbitt, Inc., New York, will be handled by Geyer, Morey, Madden and Ballard, Inc., New York advertising agency, beginning May 18. The Babbitt account had been with Brown & Butcher, Inc., New York.

Ralph C. Robertson has been named senior vice-president and a director at Geyer, Morey and will supervise the Babbitt account.

—★—

Le Vant in Edison Post

Jack I. Le Vant was elected last month to the newly created position of executive vice-president and general manager of S. M. Edison Chemical Co., Chicago. Mr. Le Vant formerly was manager of sales, merchandising, and advertising. Edison recently became a wholly owned subsidiary of Colgate-Palmolive Co., New York. Its principal product is "Dermessage," a medicated body lotion, and it also produces surgical instrument cleaners and other specialty products.

—★—

Colgate Advances Fowle

Appointment of Wilson F. Fowle, Jr., as "Wildroot" product manager for the toilet articles division of Colgate-Palmolive Co., New York, was announced last month by R. E. Hilbrant, vice-president and director of marketing for the division. Mr. Fowle is responsible for the entire line of "Wildroot" hair grooming products for men. He reports directly to K. B. Arrington, general product manager of the toilet articles division.

Wilson F. Fowle, Jr.

Sidles Velsicol Sales Mgr.

Appointment of Harry A. Sidles as sales manager, agricultural chemicals division, Velsicol

Harry A. Sidles

Chemical Corp., Chicago, was announced recently by T. W. Brasfield, director of marketing. Mr. Sidles joined Velsicol in 1958 as assistant sales manager. Previously he had been with Rohm & Haas Co., Philadelphia, where he was responsible for nation-wide sales of agricultural chemicals. Mr. Sidles succeeds Roger W. Roth, who has been appointed assistant to the vice-president.

—★—

C R Rates Detergents

Six national brands of synthetic detergents for home laundering were evaluated in the January issue of *Consumer Bulletin*,, published by Consumer Research, Inc., of Bowerstown, Washington, N. J. "Ad" (Colgate-Palmolive Co.), "All" (Lever Brothers Co.), and "Dash" (Procter & Gamble Co.) were tested as representtaives of the low-sudsing type. High-sudsing products tested included: "Fab" (Colgate), "Surf" (Lever), and "Tide" (P & G).

The article reports that "In tests to determine the washing or cleaning ability . . . in both soft (2 grain) and hard (15 grain)

schimmel

for aerosol tested insecticide spray perfumes

with a fresh neutral
or floral fragrance

Schimmel compounds are designed either to neutralize with a clean refreshing effect or to add an agreeable perfume odor to your spray.

Send an unperfumed sample and let Schimmel solve your masking problem.

schimmel & co, inc.

601 west 26th street
new york 1, new york

water the high sudsing ones were found to perform better in removing dirt . . . than the low sudsing ones." "Fab" outperformed "Surf" and "Tide" slightly; "Ad" and "Dash" were reported only moderately effective; and the performance of "All" was least satisfactory. Ratings are as follows: A. Recommended are "Fab," "Surf," and Tide"; B. Intermediate are "Ad" and "Dash," and C. Not Recommended is "All."

The article gives an analysis of "Tide" and states that "Ad" is the only one of the six products not formulated with CMC. Average cost of washing a load with a high sudsing detergent runs about six to seven cents. A low-sudsing product will cost about nine cents per load.

—★—

Wins Lehn & Fink Contest

M. Allen Kelly, a sales representative in Memphis, Tenn., for the Lehn & Fink division of Lehn & Fink Products Corp., New York, recently won first prize in a national sales contest sponsored by the division. The top award was a week's trip for two to St. Thomas, Virgin Islands, or its equivalent.

—★—

New Pennsalt Department

Russell W. Sloan was recently named manager and Robert J. Eastman was appointed head of special projects in the newly-created marketing planning department at Pennsalt Chemicals Corp., Philadelphia. Mr. Sloan, most recently manager of the commercial development department, joined Pensalt in 1947. The new department is concerned with the firm's long range marketing objectives. Previously supervisor of market research in the commercial development department, Mr. Eastman went with Pennsalt in 1956.

Working with Mr. Eastman is Regis W. Schultis, Jr., who was recently appointed to the staff of the new department. Mr. Schultis was formerly a market development representative in the industrial chemicals division.

Grant in Johnson Post

Edward J. Grant has been appointed general manager and acting head of the service products

Edward J. Grant

division of S. C. Johnson & Son, Inc., Racine, Wis., it was announced last month by Howard M. Packard, president. Formerly service products sales manager, Mr. Grant joined the company in 1936 as a salesman in Pittsburgh. Later he became New York district maintenance manager and in 1954 moved to the Racine headquarters. In his new post, Mr. Grant has over-all responsibility for the division's operations and also serves on the company's management committee. He succeeds Samuel C. Johnson, who had been vice president of the division, and who was recently named to a new post as vice-president and regional director of the company's foreign operations. The service products division markets the firm's line of commercial maintenance products, agricultural emulsions and waxes, industrial coatings and metalworking products, and commerical insecticides.

—★—

Sanitation Clinic Set

The sixth in a series of sanitation clinics sponsored by Sanitation Institute, St. Louis, has been scheduled for Mar. 24 at the Louisiana State Office Building, New Orleans. The clinic, aimed at teaching preventive sanitation methods to food plant, food container, and food handling personnel and sanitarians, will be held in cooperation with the Division of Food & Drugs of the Louisiana State Board of Health. Practical techniques in protection of food will be emphasized at the clinic.

—★—

Tightens Vaporizer Rules

The Kansas State Board of Health recently issued a regulation concerning the advertising and labeling of insecticide vaporizers which became effective on Mar. 1. The regulation prohibits the advertising and labeling of any chlorinated hydrocarbon insecticide intended for household use "in such a manner as to suggest . . . that the device be used while any person occupies the premises where such use takes place." Also prohibited is the recommendation, suggestion, or implication that the insecticide be used for any period in excess of eight hours or more frequently than at 14 days intervals.

—★—

Racine to Armour

The appointment of John P. Racine as chief chemist, quality control department of the grocery products division of Armour and Co., Chicago, was announced recently. Mr. Racine was formerly chief chemist for Rumford Chemical Works, Rumford, R. I.

—★—

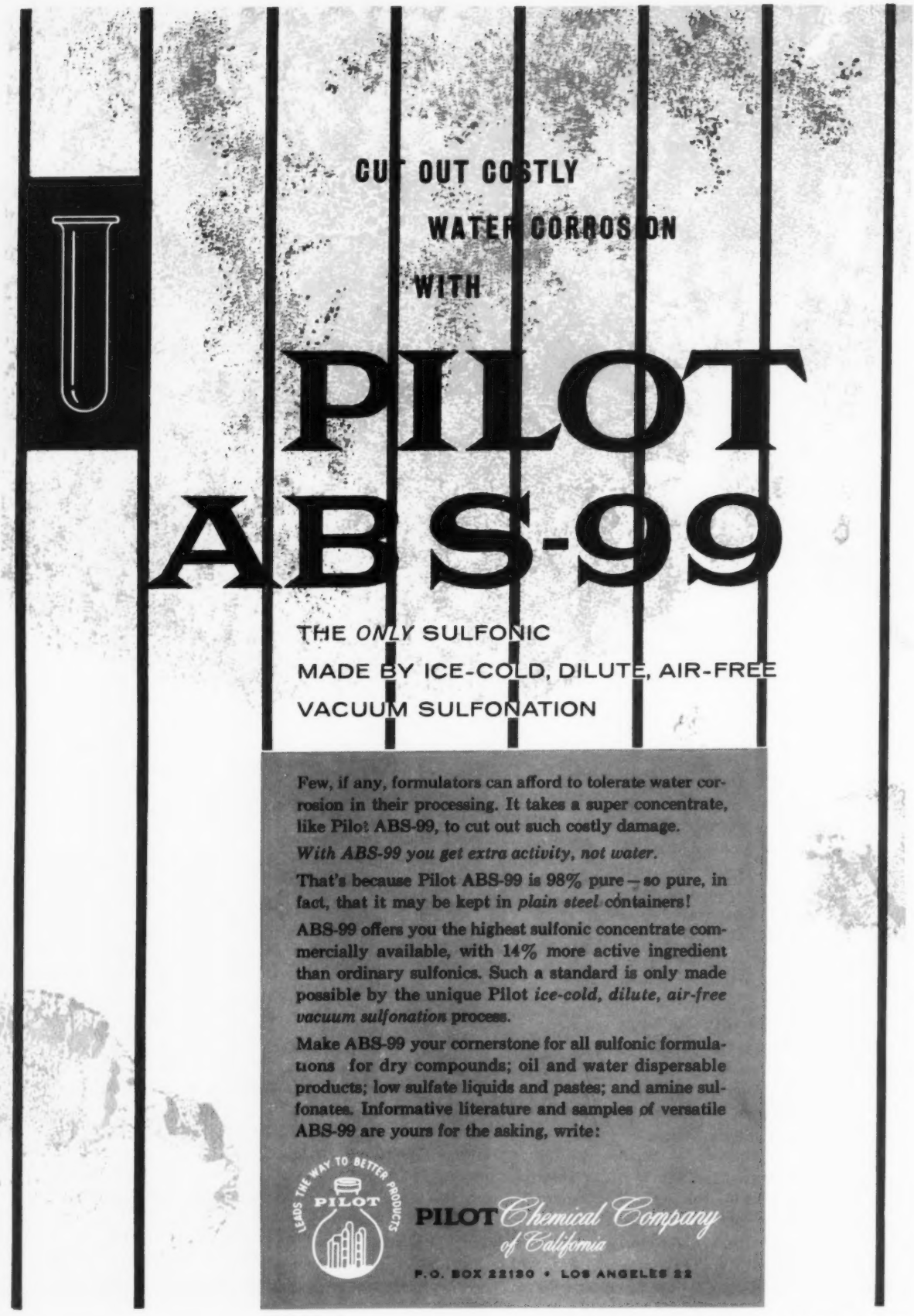
Bowen Names Richardson

Theodore R. Richardson was appointed manager last month of the engineering department of Bowen Engineering, Inc., North Branch, N. J. Mr. Richardson joined the company in 1951. Bowen specializes in spray drying and spray drying technology.

—★—

Robert Reynolds Dies

Robert J. Reynolds, 41, sales director of the Plastic and Coal Chemicals division of Allied Chemical Corp., New York, died Feb. 11 in New York en route to his office in a taxicab. A resident of Fairhaven, N. J., Mr. Reynolds is survived by his wife and two daughters.


CUT OUT COSTLY
WATER CORROSION
WITH
PILOT
ABS-99
THE ONLY SULFONIC
MADE BY ICE-COLD, DILUTE, AIR-FREE
VACUUM SULFONATION
Few, if any, formulators can afford to tolerate water corrosion in their processing. It takes a super concentrate, like Pilot ABS-99, to cut out such costly damage.
With ABS-99 you get extra activity, not water.
That's because Pilot ABS-99 is 98% pure—so pure, in fact, that it may be kept in plain steel containers!
ABS-99 offers you the highest sulfonic concentrate commercially available, with 14% more active ingredient than ordinary sulfonics. Such a standard is only made possible by the unique Pilot ice-cold, dilute, air-free vacuum sulfonation process.
Make ABS-99 your cornerstone for all sulfonic formulations for dry compounds; oil and water dispersable products; low sulfate liquids and pastes; and amine sulfonates. Informative literature and samples of versatile ABS-99 are yours for the asking, write:
LEADS THE WAY TO BETTER PRODUCTS
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PILOT Chemical Company
of California
P.O. BOX 22130 • LOS ANGELES 22

Lipson in Curtis Post

The appointment of Jack K. Lipson as director of advertising for Helene Curtis Industries, Inc.,

Jack K. Lipson

Chicago, was announced recently by George M. Factor, vice-president. Mr. Lipson had been advertising manager for the past several years and his new appointment, according to the company, marks the expansion of advertising activities and the establishment of an advertising department. He is responsible for the newly created package design department as well as all advertising and publicity operations.

Other appointments announced by Mr. Factor include Donald H. Hall as assistant to the director of advertising and Irving Koppel as new products manager. In an expansion of the company's product management group, Lynn Boland, William J. McCartney, and Edward K. Shukur have been appointed product group supervisors, and Mary Louise Casey, Alvin S. Levine, and Allan Rosenburg are new assistant product managers.

—★—

Dela. Brake Fluid Specs.

The State of Delaware has issued specifications for hydraulic brake fluid which must be met for all such products sold or distributed in that state. Meanwhile legislation is pending in the State of Kentucky concerning brake fluids with standards to be established by that state's Department of Public Safety. Registration of brake fluids is required under the legislation with an annual fee of $25 required for each brand or type of brake fluid.

—★—

Lundquist Joins CIA

John A. Lundquist, controller of Economics Laboratory, Inc., St. Paul, Minn., was elected to membership last month in the Controllers Institute of America, New York. The Institute, established in 1931, is a management organization of controllers and finance officers from all lines of business.

—★—

Carbide Advances Back

R. C. Back was recently advanced to manager of the technical department, Crag Agricultural Chemicals, Union Carbide Chemicals Co., New York. He also serves as member of the company's agricultural chemicals marketing committee.

Dr. Back continues to work in the development of technology concerning use of "Sevin" insecticide, but with his new assignment has added the responsibilities of technical development of other Crag agricultural products. Joining Carbide in 1955 as entomologist for the agricultural chemicals development group, he was instrumental in bringing "Sevin" to the commercial marketing stage. Previously, he conducted pesticide research for Boyce Thompson Institute for Plant Research, Yonkers, N. Y., and prior to that was with Ethyl Corp., New York.

R. C. Back

Shulton Brand Manager

Edmund Jackson was recently appointed to the new post of brand advertising manager for

Edmund Jackson

Shulton, Inc., New York, to handle advertising for "Desert Dri," "3-Way Curl Spray," "Technique Color-Tone," and another new product. Sales promotion manager since joining Shulton in 1957, Mr. Jackson is succeeded by George R. City with McKesson & Robbins, Inc., New York, before he went with Shulton.

Meanwhile, George L. Schultz, president, announced the formation of two new toiletries research laboratories for development of new products for domestic and foreign markets. Robert L. Goldemberg is director of toiletries research for the domestic market, and Heinz J. Eiermann has been appointed director of research, international division. Mr. Goldemberg has been with Shulton since 1958 and served most recently as associate director of toiletries research. Mr. Eiermann also had been an associate director.

—★—

Hochberg Nopco Director

Election of Dr. Melvin Hochberg as a director of Nopco Chemical Co., Newark, N. J., was announced recently by George G. Stier, president. Dr. Hochberg joined Nopco in 1957 and has served since 1958 as vice-president in charge of the company's fine chemicals division.

build higher gloss and nonslip properties into your floor polishes...with A-C® Polyethylene

Now you can make longer-wearing industrial floor polishes that give a hard, dry-bright shine with improved antislip properties—by incorporating A-C Polyethylene in your formulations.

Polishes made with A-C Polyethylene resist damp mopping, too . . . rebuff to a high luster . . . won't yellow on build-up . . . and contain no catalysts detrimental to rubber.

Manufacturing advantages? A-C Polyethylene emulsifies well in existing systems . . . is compatible with acrylic and other resins . . . stops powdering of resins. Supply and prices are stable.

You can also use A-C Polyethylene to upgrade liquid or paste polishes for shoes, furniture and cars. *Ninety per cent of all home floor polishes now contain polyethylene!*

Free samples and technical literature are readily available. Just write us at the address below!

Allied Chemical

SEMET-SOLVAY PETROCHEMICAL DIVISION

Dept. 572-AT, 40 Rector Street, New York 6, N. Y.

National Distribution • Warehousing in Principal Cities

Oskin FMC Vice-Pres.

Donald C, Oskin was appointed last month to the newly created position of vice-president

Donald C. Oskin

of executive sales for the Chemical Divisions of Food Machinery and Chemical Corp., New York. He was also named to the divisions' executive committee. Previously vice-president and assistant manager of the inorganic chemicals department, Mr. Oskin now coordinates sales efforts of the five chemical divisions which include: Becco Chemical; Chemicals and Plastics; Chlor-Alkali; Mineral Products; and Niagara Chemical. With FMC since 1945, he has held sales posts in several of the chemical divisions.

—★—

New Floor Wax

Concord Chemical Co., Camden 1, N. J., has just introduced a new floor polish formulation named "Custom Wax." Said to combine high gloss and hardness with anti-slip properties the formula is based on carnauba wax modified by the addition of a new polymer and colloidal silica ("Ludox" of E. I. du Pont de Nemours & Co.). Described as a self polishing, buffable, liquid water wax emulsion the film is claimed to be soil and water resistant, easy to apply, and durable.

"Custom Wax" has a solids content of 12 to 16 per cent, pH of from 8.5 to 9.5, is said to be stable at 'ordinary temperatures' and removable with soap or synthetic detergents.

Concord suggests the product for use on wood, asphalt, rubber, vinyl, linoleum and other floor surfaces, gives the following directions for use: Clean floor thoroughly with recommended cleaner; rinse well and let dry (no soap or detergent film may be left on the floor); apply thin coat of "Custom Wax;" let dry for 20 minutes; apply second coat; polish by machine if higher luster is desired; when floor begins to show surface dirt, damp mop with cold water and polish to restore original luster.

"Custom Wax" comes in units ranging from one gallon cans to 55 gallon drums. Private label service is available if desired.

—★—

Warmouth in Allied Post

H. Clay Warmouth has been appointed western sales representative in the Plastics and Coal Chemicals division of Allied Chemical Corp., New York, it was announced last month by James E. Shand, division manager, chemical sales. With Allied for about 15 years, Mr. Warmouth was most recently division sales representative in Cincinnati. He now makes his headquarters in Los Angeles, where he succeeds Edward M. Lemon, who was recently appointed assistant manager, chemical sales, and transferred to New York.

—★—

Tennessee Names Two

The appointments of Carl McFarlin, Jr., to responsibilities in chemical sales, and Richard C. Patrick as sales manager for the chemical division of Tennessee Products & Chemical Corp., Nashville, Tenn., were announced recently by Rolland O. Baum, president. Mr. McFarlin is vice-president and a director and Mr. Patrick was formerly assistant to the vice-president of marketing. The realignment of posts was a result of the recent death of E. K. McMahon, manager of chemical sales.

In New Morton Post

Wayne Michael, with the firm since 1957, was recently appointed to the new position of

Wayne Michael

product manager for organic chemicals by Morton Chemical Co., Chicago. He is to coordinate production, research and sales programs. In addition, he participates in planning and developing new products.

—★—

Mrs. Haebler Dies

Mrs. Ethel Kurth Haebler, 60, widow of the late William T. Haebler who at the time of his death in 1956 was an official of van Ameringen-Haebler, Inc., New York, died in University Hospital, New York, on Feb. 10. A native of Columbus, Wis., Mrs. Haebler was a director of International Flavors and Fragrances, Inc., New York, parent firm of van Ameringen-Haebler.

—★—

Oronite Expands Dept.

Oronite Chemical Co., San Francisco, recently reorganized and expanded its marketing department with the creation of three new product sales divisions. The divisions are industrial chemicals, surface coatings and plastics chemicals, and petroleum and rubber chemicals. Sales manager of the industrial chemicals division is B. P. Webb. Products handled by this division include detergent raw materials, polybutenes, dispersants, xylenes, and odorants.

In The Field of ALKali Resins Shanco Leads with Two Peerless Products

Shanco W-1142 Wax

A newly developed, emulsifiable type Fischer-Tropsch Wax. It is characterized by high melting point, low penetration, light color, ease of emulsification and ability to produce high gloss films.

PROPERTIES

Melting Point	205-210°F
Color-Gardner	9-11
Acid Value	37-42
Penetration	1-3
100 gms — 5 Sec. — 77°F	

Emulsions based on W-1142 Wax give very good performance in all the various systems of bright drying emulsions as:

High Polymer, Scuff Resistant Types
Low Polymer—High Wax Buffable Types
Hig Wax Buffable Types

Shanco W-1142 Wax is readily emulsified and emulsions can be produced with a very high degree of translucency and having very pale color. Films dry with high clarity, brightness and gloss.

— o —

To keep abreast of Shanco developments have us send you the MESSENGER, *Shanco's monthly publication.*

Shanco L-1144 Resin

In the field of alkali soluble resins having a very high melting point, is Shanco's L-1144.

PROPERTIES

Melting Point (R & B)	170-180°C
Acid Number	125-135
Color-Gardner	9-11
Ammonia Requirement (28%)	Approximately 18-20% of the weight of the resin at 190-195°F

Shanco L-1144 is one of the highest melting resins in the Shanco Alkali Soluble Resin series. It produces excellent gloss, leveling and hardness in all the various emulsion systems for floor use including polymer and wax types.

The resin is especially well suited for use with polyacrylate emulsions as its high melting point improves film hardness and resistance to dirt pickup.

Formulations containing Shanco L-1144 Resin are stable over a wide range of resin content consistent with general practice.

Water spot resistance is a paramount feature of Shanco L-1144 Resin and this property is achieved within a relatively short drying period.

Ammonia solutions of the resin are pale, brilliant and fluid. No pH drift is encountered on aging either at room temperature or at 50°C.

SHANCO Plastics & Chemicals Inc.

TWO MILE CREEK ROAD • TONAWANDA, NEW YORK

'59 Soap, Detergent Sales Set New Peak

DETERGENT and soap sales reached a new peak in 1959, both in tonnage and value, it was reported late last month by the Association of American Soap and Glycerine Producers. Individual reports by 62 member companies showed sales totalling 4,269,877,000 pounds valued at $1,093,450,000, an advance of 4.4 per cent in tonnage and 5.1 per cent in dollars over 1958 totals — 4,089,500,000 pounds and $1,040,753,000.

In 1959, sales of synthetic detergents accounted for 75 per cent of the total combined market, compared with 72.2 per cent in 1958. Sales of synthetics in 1959 rose to 3,203,437,000 pounds and $774,230,000, an increase of 8.5 per cent in tonnage and 8.1 per cent in value over 1958, when sales of 2,951,352,000 pounds valued at $715,951,000 were reported.

Sales of liquid detergents, still the chief growth item on the list, were up 31.4 per cent in tonnage and 25.9 per cent in value. Their growth, however, is confined entirely to packaged products, up 39.2 per cent in 1959, whereas tonnage sales of liquid detergents in bulk dropped 20.7 per cent in the same period. Liquid synthetics sold in 1959 totalled 566,168,000 pounds valued at $202,901,000. Packaged liquid detergents accounted for 513,360,000 pounds and $179,392,000 of this total. Liquid synthetic shampoos showed a tonnage sales increase of 7.5 per cent.

Soap sales dropped 6.3 per cent in tonnage and 1.7 per cent in value, to 1,066,440,000 pounds and $319,220,000. Corresponding figures in 1958 were 1,138,148,000 pounds and $324,802,000. Sales of bar toilet soaps which account for about half of all sales of soap dropped 0.8 per cent in tonnage but rose 4.1 per cent in value. The sales of granulated soaps including washing powders dropped by 20.6 per cent in 1959. An increase of 2.8 per cent was reported in 1959 sales of liquid soap excluding packaged shampoos.

Scouring cleanser sales in 1959 totalled 367,023,000 pounds valued at $50,811,000, a 4.6 per cent rise in tonnage and 3.7 increase in dollars over 1958. Sales in 1958 were reported at 350,836,000 pounds and $49,021,000. Sales of scouring cleansers are not included in sales totals given above or in the table.

Detergent and Soap Sales for 1959 and 1958

	Thousands of pounds		Thousands of dollars	
	1959	1958	1959	1958
Detergents, solid	2,637,269	2,520,608	571,329	554,843
Detergents, liquid	566,168	430,744	202,901	161,108
Total	3,203,437	2,951,352	774,230	715,951
Detergents, solid, other than shampoo, pkgd.	2,509,284	2,398,300	548,030	531,853
Detergents, solid, other than shampoo, bulk	118,993	113,075	17,425	16,964
Detergents, liquid, other than shampoo, pkgd.	64,170*	46,086*	179,392	137,369
Detergents, liquid, other than shampoo, bulk	4,880*	6,156*	5,765	7,474
Detergent shampoos, liquid	13,768	12,808	17,744	16,265
Detergent shampoos, solid	8,992	9,233	5,874	6,026
Soaps, other than liquid	1,037,864	1,110,332	313,745	319,263
Liquid soaps	28,576	27,716	5,475	5,589
Total	1,066,440	1,138,148	319,220	324,802
Bar toilet soaps**	561,744	566,077	207,057	198,812
Laundry bars, yellow & other than white	47,045	46,459	4,896	5,240
Laundry bars, white	110,803	119,706	24,304	25,390
Soap chips & flakes, pkgd.	26,976	35,062	9,175	11,775
Soap chips & flakes, bulk	81,004	88,896	8,482	10,498
Soap, granulated, sprayed, pkgd.***	110,683	130,942	33,518	37,951
Soap, granulated, sprayed, bulk***	57,859	80,309	6,556	9,478
Hand paste & powder, incl. waterless hand cleaners	8,444	9,775	1,497	1,435
Paste & jelly soaps, potash & other	12,431	12,638	1,745	1,803
Shaving soap (stick, powder, cake)	2,263	2,326	1,466	1,542
Shaving cream (tube, jar, aerosol, soapless)	17,677	17,316	14,852	15,175
Soap shampoo, liquid, pkgd.	63*	64*	215	222
Soap, liquid, other than pkgd. shampoo	3,509*	3,413*	5,260	5,317
Miscellaneous or other soaps, incl. shampoo creams, jellies, pastes, powders	935	826	197	164

*expressed in thousands of gallons.
**includes all toilet bars, mechanics, synthetic, medicated, etc.
***includes washing powder.

Polak & Schwarz Price List

The chemical department of Polak & Schwarz International N. V., Zaandam, Holland, division of International Flavors and Fragrances, Inc., New York, recently published a 10 page price list of it aromatic chemicals and specialties.

Burkhart Heads N. Y. Group

William H. Burkhart, chairman of Lever Brothers Co., New York, was elected board chairman of the Fifth Avenue Association in New York last month. The association is made up of business firms in the Fifth Ave. area for the betterment and protection of the area.

Subtle superiorities

produce dramatic differences for Emerso

Are oleic acids pretty much alike? Basically, yes! But the subtle performance advan tages of Emersol Oleic Acids do contribute to a superior product for many manu facturers . . . a product that meets a tighter quality standard and enjoys a significan sales edge at the retail counter. And, these are *bonus* performance features becaus Emersol Oleic Acids cost no more than other oleics of the same grade. See if thes special Emersol qualities interest you.

IN VINYL PLASTICIZERS . . . *Because interior decor* is an important factor in selling car many producers of vinyl automotive upholstery incorporate an epoxidized oleic ester plasticizer i their formulations to keep their clear vinyls transparent and unyellowed, their white vinyls reall white, and pastel colors pure and true. And many plasticizer producers have learned through exp rience that the lightest colored epoxidized oleic esters are made from color-stable Emersol Oleic Acid

Oleic Acid users

IN SYNTHETIC LATEX... *Foam rubber* gets an extra lift from Emersol 233, thanks to its *exceptional purity*. Synthetic rubber latex producers find that the low polyunsaturant content of Emersol 233 imparts the best emulsion stability before final processing, provides better frothing, and keeps production uniform from batch to batch. And the consumer gets a pillow with a finer, more uniform cell structure and no objectionable odor.

IN TEXTILES... *Manufacturers of textile processing* materials such as wetting agents, rewetting agents, and softeners, are most discriminating about the brand of oleic acid they select. The heat used during processing tends to discolor any oleic acid, but Emersol Oleic Acids, with their high degree of *color stability*, offer maximum resistance to such darkening. Cotton finishers find that processing agents based on Emersol Oleic Acids keep their white goods "fresh white", which, after all, is the way the customer wants them.

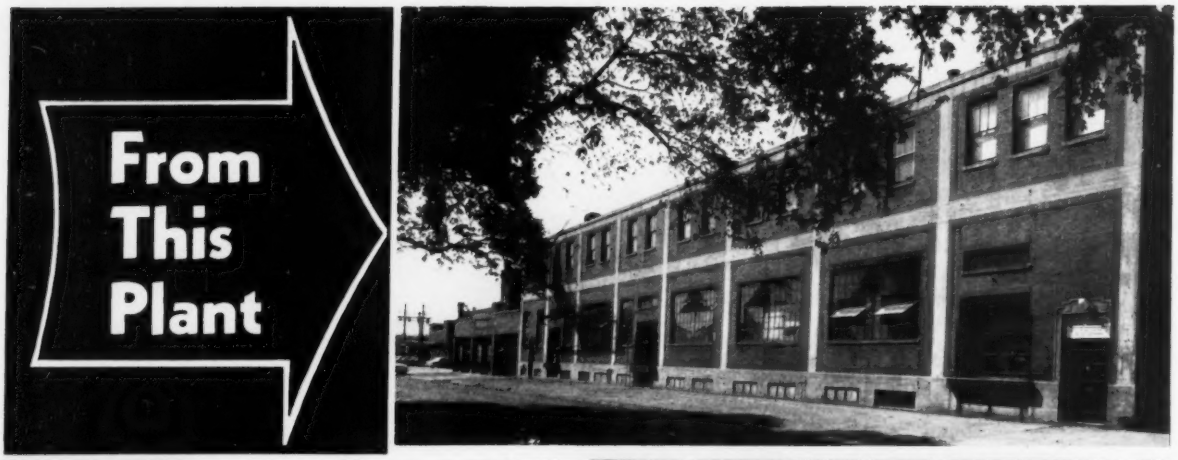
IN DUPLICATING MATERIALS... *It used to be that carbon paper*, with common oleic acid as a dyestuff-solvent, developed an unpleasant personality during storage. Over a period of time, the oleic component could turn rancid and cause secretarial noses to turn up in disapproval. But now, most major manufacturers have found out about the exceptional *rancidity resistance* of Emersol 233 Oleic Acid. Many won't specify any other. And no wonder – Emersol 233 encourages repeat sales and costs no more than other oleic acids of same grade.

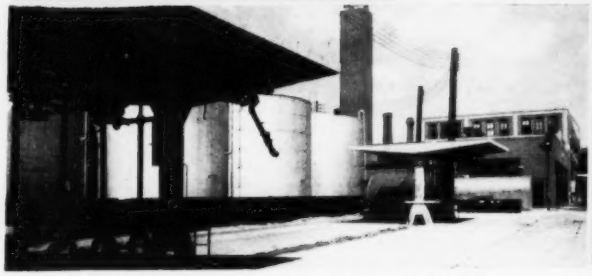
IN TOILETRIES AND COSMETICS... *Shelf life problems* are a major concern for producers of shampoos and other toiletries unless they contain an oleic acid with excellent *oxidation stability*, which happens to be one of Emersol 233's most outstanding characteristics. This ability to resist attack by air, even for long periods, minimizes changes in product color, viscosity, odor and texture. First-class toiletry manufacturers consider Emersol 233 LL Oleic Acid imperative for protection of their valuable brand names.

We'd like to have you prove the superior performance features of the Emersol Oleic Acids to yourself. Won't you write now to Dept. S-3 for a 20 page treatise on oleic acids, or a sample of: Emersol 233 (low linoleic); Emersol 220 (double distilled); Emersol 213 (single distilled); or Emersol 200 (undistilled)?

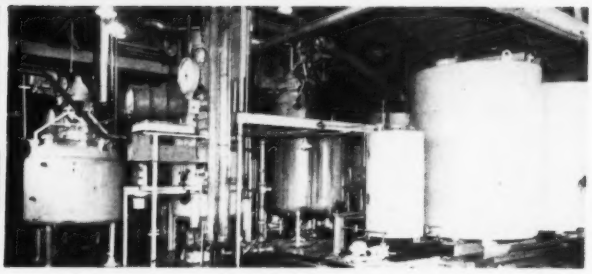
FATTY ACID SALES DEPARTMENT / EMERY INDUSTRIES, INC., Carew Tower, Cincinnati 2, Ohio
Vopcolene Division, Los Angeles – Emery Industries (Canada), London, Ontario – Export Department, Cincinnati

Emery





Ample tank storage for efficient bulk material handling.



Modern equipment assures product consistency and uniform high quality.

Krystall stands ready to meet your detergent requirements

When it comes to filling your detergent requirements you can depend on the Krystall Chemical Co. With our efficient plant and modern laboratory plus an excellent technical staff we are ready and able to handle your surfactant needs.

Our plant has bulk storage for up to 600,000 gallons of raw materials and finished products including storage facilities for handling stabilized liquid Sulfur Trioxide. Warehouse space for over 2000 drums of finished materials, and 600 feet of railroad siding. Facilities for simultaneous loading and unloading of 10 trucks and 5 railroad cars.

Krystall Chemical Co., primarily a manufacturer of detergent intermediates also offers extensive compounding and packaging facilities. We have just installed another new, high speed automatic filling line for handling either plastic bottles or cans.

Our technical staff will welcome the opportunity to help with your production, formulation, product development and analysis. . . . What ever problem you may have write or call us today.

SOME OF THE EXPANDING KRYSTALLEX SERIES . . .

KRYSTALLEX A—A sodium lauryl sulfate with a very low salt content and low viscosity.

KRYSTALLEX C—A sodium lauryl sulfate characterized by its high uniform viscosity—excellent base for creme shampoos.

KRYSTALLEX T—A triethanolamine lauryl sulfate with high activity, low cloud point, very light color and color stability.

KRYSTALLEX AM—An ammonium lauryl sulfate with low salt content.

KRYSTALLEX S-26—A new detergent manufactured for shampoo use.

KRYSTALLEX S-330, and KRYSTALLEX S-365—Purer forms of alcohol sulfates recommended especially for rug and upholstery cleaning.

KRYSTALLEX S—A conventional type of dodecylbenzene sulfonic acid.

KRYSTALLEX SX—A pure form of dodecylbenzene sulfonic acid.

KRYSTALLEX S-63—A specially purified sodium dodecylbenzene sulfonate. Clear and odorless liquid. Excellent base for all types of liquid detergents.

KRYSTALLEX S-75—An ammonium alkyl phenoxyethylene sulfate.

KRYSTALLEX LX—Triethanolamine alkyl aryl sulfonate, 60% active.

KRYSTALLEX LA—A non-ionic fatty acid alkanolamide manufactured for use as a foam stabilizer.

KRYSTALLEX CD—A coconut fatty acid alkanolamide useful for thickening, etc.

KRYSTALLEX CDA—A modified coconut fatty acid alkanolamide used in floor cleaner concentrates. Has outstanding resistance to hard water.

KRYSTALLEX LIQUID DISHWASHING DETERGENTS—Completely formulated products ready for dilution and packaging.

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"SPECIALTY ORGANIC CHEMICALS"

Nelson Gothard Dies

Nelson J. Gothard, 66, retired chief chemist for Sinclair Refining Co. in Chicago, died

Nelson J. Gothard

Feb. 21 at his home, 9326 S. 49th Ct., Oak Lawn, Ill. A past president of CSMA, Mr. Gothard started with Sinclair in 1919 and became chief chemist in 1950. He retired last June and had been responsible for the formulation, specification and quality control of products at Sinclair's six refineries throughout the country. Mr. Gothard is survived by his widow, Hazel; a son, John; a daughter, Mrs. Dorothy Decker; and four grandsons.

—★—

Gould Heads Boyle-Midway

Bernard Gould *(See cut on front cover)* has been elected president of Boyle-Midway, Inc., the household products division of American Home Products Corp., New York, it was announced last month by Walter Silbersack, president of American Home. Mr. Gould had been assistant to the president of the parent company since 1958 and was acting president of the division following the recent retirement of Strieder Schraffenberger. Before joining American Home, he was vice-president of sales and advertising for Associated Products, Inc., New York, and prior to that was with the Gillette Co., Boston, and its Toni division in Chicago.

Boyle-Midway is a leading manufacturer and marketer of aerosol products and has plants in six states. It produces a wide variety of cleaners, polishes, and chemical specialties for household use.

—★—

Fels Advances Hancock

The appointment of William P. W. Hancock to the newly-created post of merchandising manager of Fels & Co., Philadelphia, was announced Feb. 26 by Frank Jelinek, sales manager. This is the fourth key position established in the marketing department of Fels in the past year. In addition to Mr. Hancock, other managerial posts and the men assigned to them in an expansion of Fels' marketing activities are: Grant Keeler, advertising manager since April, 1959; David Melnicoff, in charge of corporate planning since July; and in November, 1959, Andrew Ronon, was appointed assistant sales manager.

Mr. Hancock has been a member of Fels' sales department for four years following his graduation from the University of Pennsylvania in 1953. He was production manager of the marketing department of Esterbrook Pen Co. for about two years before he rejoined Fels & Co. in September 1959. In his new position, Mr. Hancock is in charge of general merchandising and promotion services.

—★—

Jellinek to PFW

J. Stephen Jellinek recently joined the perfume staff of Polak's Frutal Works, Inc., Middletown, N. Y. With the perfume department of P.F.W. in Amersfoort, Holland for the past several years, Dr. Jellinek is the author of "Kosmetologie," a monograph recently published in Germany. He also is the author of several technical articles on perfumery.

Trott to Address PAAA

David H. Trott, advertising manager for the overseas division of Procter & Gamble Co., Cincinnati, will be a featured speaker at the Chicago Premium Advertising Conference on Tuesday, April 5. The Conference is sponsored by the Premium Advertising Association of America, Inc., New York, and will be held in conjunction with the National Premium Buyers Exposition at Navy Pier, April 4-7. Mr. Trott's talk is titled "From Hairpins to Hi-Fi's—Premiums Sell Soap Around the World." With P&G since 1941, Mr. Trott went with the overseas division seven years ago and was named to his present post last year. About 1,500 people are expected to attend the Conference.

David H. Trott

—★—

CSMA Compilation Revised

Revision number one of the "Compilation of Labeling Laws and Regulations for Hazardous Substances" was recently published by the Chemical Specialties Manufacturers Association, New York. The 25-page revision contains new laws and regulations up to September 1959. Each member company of CSMA will receive one free copy with extra copies available at $2 each. Charge for non-members is $3. Complete issues of the basic compilation and the revision are available at $5 to members and $7 to non-members, postpaid.

PINE OIL SMELLS CLEAN...CLEANS CLEAN

Today pine oil is one of the most important raw materials used in the manufacture of liquid detergents, soaps, laundry aids, general cleaners, disinfectants, and deodorants. There are two good reasons for this acceptance.

PINE OIL SMELLS CLEAN—It provides the end product with a smell as fresh and reassuring as a pine forest.

PINE OIL CLEANS CLEAN—Pine oil does more than impart odor. It has definite chemical properties as a wetting agent and solvent to actually assist the other components of a cleaning agent in cutting grease. And it has high bactericidal qualities as well.

To keep pace with the expanding demand for pine oil, Hercules and other producers have steadily increased their output and plan still more capacity for 1960.

Pine Chemicals Division
Naval Stores Department

HERCULES POWDER COMPANY
INCORPORATED

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Committee D-12 Meeting Program

COMMITTEE D-12 on Soaps and Other Detergents (American Society for Testing Materials) was to have held its annual meeting at the Park Sheraton Hotel, New York, March 14 and 15. J. C. Harris of Monsanto Chemical Co., Dayton, O., D-12 chairman, was scheduled to open the meeting at 9:30, Monday morning, March 14. The following subcommittees were to have met at the opening session: S-4, Specification for Inorganic Alkaline Detergents, W. Stericker, Philadelphia Quartz Co., chairman; T-2, Analysis of Soaps and Synthetic Detergents, task group 1 with H. C. Speel as chairman; task group 16, Qualitative Identification with L. E. Weeks of Monsanto Chemical Co., St. Louis, Mo. as chairman; task group 24, Bleaching, C. H. Schmiete, chairman; T-4, Analysis of Inorganic Alkaline Detergents, M. V. Trexler, Westvaco Chemical Division of FMC, chairman.

Papers scheduled for presentation before this session included: "Compatibility of Silicate and Phosphate Builders for Liquid Detergents," by R. Getty and W. Stericker of Philadelphia Quartz and "Demonstration of Phosphate Analysis by Auto-Analyzer Technic," by D. P. Lundgren of Lever Brothers Co., New York.

The program set for Monday afternoon, March 14, included the following subcommittee meetings: T-5, Physical Testing, M. G. Kramer of Wyandotte Chemicals Corp., Wyandotte, Mich., chairman; S-2, Specifications for Soaps and Synthetic Detergents, W. H. Joy of Bell Telephone Laboratories, Inc., chairman; T-2, Analysis of Soaps and Synthetic Detergents, J. C. Harris of Montanto, chairman; G-2, Nomenclature and Definitions, A. M. Schwartz of Harris Laboratories, Washington, D. C., chairman; and G-1, Advisory, J. C. Harris, chairman. A. R. Martin of Whirlpool Corp., St. Joseph, Mich., was to have read a paper on "Soil Redeposition."

The morning session of Tuesday, March 15, was to have opened with meetings of subcommittees T-3 and S-4 on Dry Cleaning Detergents. J. R. Wiebush of National Institute of Dry Cleaning is chairman of both groups.

A symposium on dry cleaning detergents was scheduled to hear: E. Hirschorn of R. R. Street & Co., Chicago, on "Micelle Formation and Water Exchange Between Fabric and Micelles in Dry Cleaning Systems," J. Shapiro of Dixo Co., Rochelle Park, N. J., on "Testing of Dry Cleaning Detergents of the Charge Type;" and L. E. Weeks and J. T. Lewis of Monsanto Chemical Co., St. Louis, Mo., on "Laboratory Methods for Evaluation of Dry Cleaning Detergents.

Following the symposium

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Immediate shipment of both 80% and 98% triethanolamine can be ordered from the Brandenburg, Kentucky, plant. Tank car, compartmented car, tank truck shipments are nitrogen-blanketed to assure color stability.

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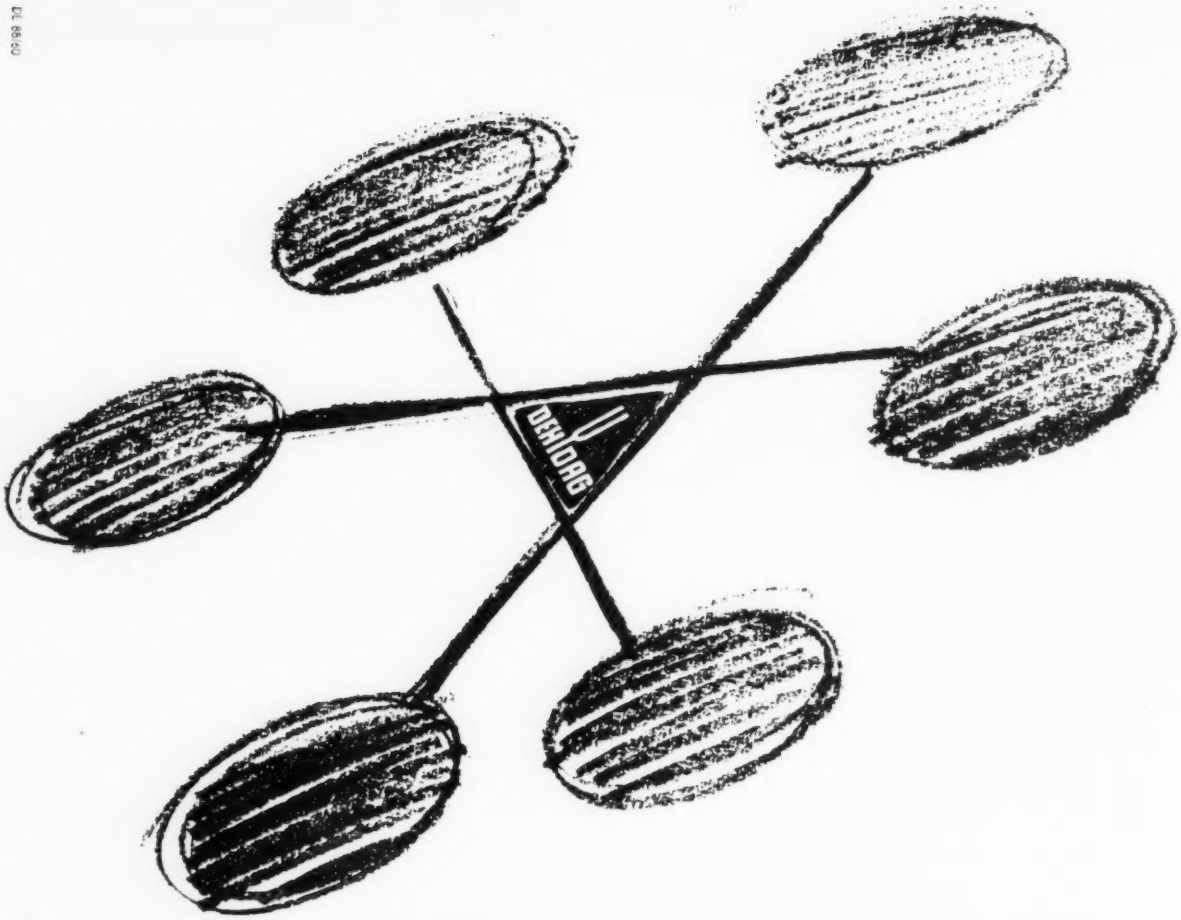

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there was to have been a meeting of subcommittee T-6, Analysis of Metal Cleaners, of which Donald Price, New York consultant, is chairman.

At the group luncheon, E. W. Blank of Colgate-Palmolive Co., D-12 vice-chairman, was to present the Committee D-12 Award to A. M. Schwartz of Harris Laboratories. After the presentation and its acceptance by Dr. Schwartz a general meeting was to have concluded the events.

★

Oil Specialties Booklet

An illustrated booklet containing instructions on the preparation of floors for resin floor finish treatment, was published recently by Oil Specialties and Refining Co., 18 Bridge St., Brooklyn 1, N. Y. The brochure, titled "Know-How Floor Maintenance Procedures with Resin Floor Finishes," also includes directions for simple maintenance of floors after the resin treatment. Copies are available upon request.

★

Solventol Realigns Sales

Realignment in the sales organization of Solventol Chemical Products, Inc., Detroit, with the advancement of three sales executives, was announced last month by Robert W. Huffman, president. Jack Bowen has been appointed sales manager of the bulk and institutional divisions and George Alandt has been named manager of industrial sales. Both these sales units are under the direction of Carleton A. German, who has been advanced from general sales manager to vice-president of sales and engineering. Solventol produces a complete line of cleaning products for industrial, institutional, and commercial use.

Jack Bowen

George Alandt

Officers of the New York Chapter of the Society of Cosmetic Chemists for 1960 are, left to right: Martin Katz, Revlon, Inc., treasurer; Agnes Eorte, Givaudan-Delawanna, Inc., secretary; John Longfellow, Colgate-Palmolive Co., chairman; and Saul Bell, Chesebrough-Pond's Inc., chairman-elect.

★

Entomology Course Set

A course in military entomology will be presented by the Armed Forces Pest Control Board July 10-23 at the Naval Medical School, National Naval Medical Center, Bethesda, Md. The course will be the third annual presentation by the board and is designed to provide training for entomologists on active and reserve duty in the military services. The course covers studies of the military in the field of entomology, and the nature of entomological problems confronting the armed forces. Information about the course is available from the Armed Forces Pest Control Board, Forest Glen Section, Walter Reed Army Medical Center, Washington 12, D. C.

★

Plant for Acrylics Opens

Full scale production began last month at the new ten million pound per year acrylic plant of Catalin Corp. of America at Fords, N. J. Acrylic resins produced at the plant have application in floor finishes, paints, textiles, adhesives, and other products. Design and processing equipment at the plant is based on a cross-licensing agreement between Catalin and Union Chimique Belge, S. A., Brussels, Belgium.

★

My-Ko Buys Polish Firm

My-Ko Chemical Corp., Milwaukee, recently purchased Tutch-Upp, Inc., in that city, a producer of furniture polish and touch-up kits. My-Ko manufactures cleaners for rugs, upholstery, and tile, and other specialties.

CONCLUSIVE EVIDENCE OF THE SUPERIORITY OF CAUSTIC CLEANING FORMULATIONS CONTAINING Pfizer GLUCONATES!

If you compound caustic washing or cleaning formulations, you should put Pfizer Gluconates on trial in your formulas. Judge for yourself the economy and superiorities of caustic-gluconate formulations. Overwhelming evidence also shows that Pfizer Gluconates are stable, both in storage and in use, in caustic compounds.

EXHIBIT A

ONE SPARKLING CLEAN BOTTLE —The inclusion of Pfizer Gluconates in your formula will assure bottling customers of a compound which will give spotless results. Pfizer Gluconates have proven to be the product of choice for preventing formation of film on bottles and scale on equipment.

EXHIBIT B

ONE BRIGHT STRIP OF ALUMINUM —Pfizer Gluconates in your aluminum etching compounds prevent the formation of hard, adherent scale. Both Sodium Gluconate and Gluconic Acid increase caustic efficiency—you use less in your compounds yet assure your customers of a more uniform etch.

EXHIBIT C

ONE DE-RUSTED BOLT—Superior caustic rust removal compounds are now possible through the inclusion of Pfizer Gluconic Acid or Sodium Gluconate. In caustic solutions Pfizer Gluconates dissolve rust and prevent after-rust while increasing the efficiency and prolonging the life of the bath.

EXHIBIT D

ONE SHINY PIECE OF STEEL—Pfizer Sodium Gluconate and Gluconic Acid improve the effectiveness of your caustic paint stripping compounds by eliminating the usual brown layer of iron hydroxide. Also they permit freer rinsing of the paint-stripped metal.

THE VERDICT

The verdict is unanimous—Pfizer Gluconic Acid and Sodium Gluconate assure you of compounds with the highest cleaning and etching efficiency. Write Pfizer for complete technical data and information on the proper Gluconate use levels.

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Francis Maywood V. P.

Donald H. Francis, general manager of Maywood Chemical Co., Maywood, N. J., division of

Donald H. Francis

Stepan Chemical Co., Chicago, became a vice-president of the parent firm last month. He continues in his post at Maywood. Joining Stepan in 1953 as a chemical engineer, Mr. Francis later became director of engineering. Stepan has been expanding its manufacturing facilities for liquid detergents and liquid fertilizers during the past several years through acquisition of Ninol Laboratories, Chicago; Maywood Chemical; Ris-Van, Inc., Belmond, Iowa; and Davis Liquid Fertilizer Co., Benton, Iowa.

★

McCutcheon to Morristown

Laboratory and office of John W. McCutcheon, Inc., consulting chemists and chemical engineers, were moved late in February from 2279 Andrews Ave., Bronx, N. Y. to 236 Mt. Kemble Ave., Morristown, N. J. According to John Welland McCutcheon, head of the firm, the new location will provide greatly expanded working areas for laboratories, a pilot plant setup, business office and duplicating facilities. The firm, which specializes in synthetic detergents, soaps, oils, fats and glycerine, was founded by Mr. McCutcheon in 1945. Earlier, from 1930-34, he had been a plant chemist for Procter & Gamble Co. in Hamilton, Canada. From 1934-39, Mr. McCutcheon was chief chemist in charge of glycerine manufacturing for Lever Brothers, Ltd., Hamilton, Canada. For the next two years he was plant superintendent for Lightfoot Schultz Co., Hoboken, N. J. His last position in the industry was with E. F. Drew & Co., Boonton, N. J., in 1943-44.

He is the author of "Synthetic Detergents," and, with the late Dr. E. G. Thomssen, co-author of "Soaps and Detergents." Both books were published by MacNair-Dorland Co. John W. McCutcheon, Inc., continues its offices at 475 Fifth Ave., New York 17.

New Verona Price List

A new price list and catalog of its essential oils, aromatic chemicals, and specialties, was issued recently by Verona Aromatics, 26 Verona Ave., Newark 4, N. J. The 12-page booklet may be obtained from the company upon request.

★

New Lemke Price List

A ten-page price list of its fine and technical chemicals was recently issued by V. L. Lemke & Co., Lodi, N. J. The price schedule covers more than 60 chemicals, many of which have application in soap and chemical specialty formulations.

CIBS of New York, heard an address by Kyle Rote, center, top picture, N. Y. Giants football player and director of sports for radio station WNEW, New York, at their February luncheon. With Mr. Rote are Lamson Scovill, left, CIBS president, and Dallas D. Roush, program chairman. New CIBS committee members and chairmen, and officers, in lower photo, are, left to right: Paul Alexander, "Drug & Cosmetic Industry," publicity and awards; Frank Pond, Dominion Products Co., corresponding secretary; Allen T. Stewart, Parfait Promotional Packaging Co., membership; Dallas D. Roush, Owens-Illinois Glass Co., luncheons; Lamson Scovill, Scovill Manufacturing Co., president; Shockley C. Gamage, Magnus, Mabee & Reynard, Inc., general program; Edgar Ellis, Charabot & Co., personnel; Shaw Mudge, P. Robertet, Inc., auditing; and George Schumacher, Chesebrough-Pond's, Inc., constitution.

Pennsalt Price Increase

An increase in the price of bulk liquid chlorine of $4 per ton for shipments east of the Rocky Mountains was announced last month by Pennsalt Chemicals Corp., Philadelphia. The increase brings the price to $67 per ton for bulk shipments on April 1 for contract customers and effective immediately on spot business. New prices for multi-unit tank car shipments are: 75 tons or more per year, $4.30 per 100 pounds; 45-74 tons, $4.50; less than 45 tons, $5.50; all other terms remain unchanged. The price increase is the company's first in bulk chlorine since 1956.

—★—

Two Advanced at Stepan

The advancements of David B. Hatcher to executive vice-president and Wilfred J. Crepeau to assistant to the executive vice-president at Stepan Chemical Co., Chicago, were announced last month by Alfred C. Stepan, Jr., president. Dr. Hatcher was formerly vice-president and general manager and now coordinates the operations of all divisions and subsidiaries. Mr. Crepeau had been assistant general manager.

David B. Hatcher

Mr. Stepan also announced the acquisition of Ris-Van, Inc., Belmond, Ia. marking Stepan's entry into the liquid fertilizer business.

—★—

Regier in Hercules Post

E. Milton Regier became district manager of the Boston office for the naval stores department of Hercules Powder Co., Wilmington, Del., early last month. He replaces Arthur H. Sanford who will retire at the end of March. With Hercules since 1941, Mr. Regier had been senior sales and service representative for the Boston office.

W. J. Crepeau

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The Poly-Tergent surfactants have proved effective in scouring, desizing, bleaching, dyeing and printing operations in the textile industry. In pulp and paper they are used for rewetting, deinking, pitch control and felt washing. Other applications are in water-base paints, pesticide formulation, metal cleaning and petroleum demulsification.

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dividual treatment would be generally warranted under American conditions of operation. It is thus necessary to rely on protective organic coatings to obtain the desired service life in aluminum aerosol cans. Adequate cleaning is required to prepare the surface to receive the enamel, and some form of chemical treatment has been favored by a number of workers. The Hunter-Douglas interests in aluminum cans have recently been acquired by our company, and it is interesting to note that their research group favored the use of a nine-step procedure for cleaning and treating aluminum shells prior to application of enamel. However, studies in our laboratory have indicated that properly formulated enamels will perform satisfactorily on cleaned aluminum surfaces without elaborate chemical treatments.

Both epoxy and phenolic resin types of enamels have shown merit for different types of products. They may be used in combination as a single coat or in a double coat with different resins in each coating. Vinyl top coats have merit for some types of products. Other related types of polymers are under study, including the organosol type of coatings. It is thus apparent that many types of enamel systems can ultimately be made available in order to tailor the container to the specific product.

Valve Mounting Cups

Tinplate valve mounting cups have been used with reasonable success with aluminum aerosol cans. However, the use of aluminum mounting cups may often be desirable in order to minimize the electrolytic effect obtained from a bi-metallic system. Some aluminum cups, both plain and enamel, are available. Work is under way on the development of enamels for cups, and there will undoubtedly be considerable further developments along this line in the future.

Future Possibilities

The extrusion process provides flexibility, so that a wide variety of sizes and shapes may be anticipated in the future. The can which was described in detail has a six-ounce nominal capacity, but can be made in a nine-ounce size by a simple change in height. Smaller diameter aluminum cans which are available, or under development, range from 22 cc to 3½ ounce nominal capacity. Containers with beaded body contours may be fabricated in the future to provide more individual styling.

The extrusion process should facilitate the design of neck openings for direct valve staking if this feature is desired by the industry.

Continued work on development of protective coatings will

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Polymer Emulsions

Considered a real "breakthrough" by many leather finishers, Polyvinyl Chemical's W-63 polymer emulsion series offers the features needed to meet the marketing challenges of the 60's.

To leave films of sparkling clarity, W-63 emulsions are highly translucent and of very fine particle size. For formulation ease, they show excellent compatibility in blends with casein, shellac, waxes, dyes and pigments. W-63 emulsions adhere perfectly to tannery finished leathers — both lacquer and water topped. They level beautifully, too, whether applied by swab or spray. Want samples? Here's the W-63 Series!

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make aluminum containers applicable to a wider range of product formulations.

Conclusion

Aluminum aerosol containers are light in weight and attractive in appearance, and provide possibilities for individualized trimming and decorative effects. They are comparable in price to other aerosol containers. Adequate service life can be obtained for most products, but individual product testing is required in order to obtain assurance in regard to service life.

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★

Robinson in Nuodex Post

The appointment of Gerald P. Robinson as manager of industrial fungicides for Nuodex Products Co., Elizabeth, N. J., division of Heyden Newport Chemical Corp., New York, was announced last month by W. J. Houston, Nuodex vice-president of marketing. In his new post Mr. Robinson administers all product programs, including sales and technical service, for the company's prospects for industrial fungicides and customers in non-paint industries. He was formerly a sales representative in the industrial division of Lever Brothers Co., New York, and prior to that was a research chemist with Lever.

New Ultra Detergent Plant

Ultra Chemical Works, Inc., Paterson, N. J., a subsidiary of Witco Chemical Co., New York, has begun construction of its second detergent and detergent chemicals plant, it was announced last month by Henry Ruegg, president. Completion is scheduled for late this year.

The new plant, with 40,000 square feet of floor space, is being built at Witco's site in the Clearing area of Chicago. Its completion reportedly will establish Ultra as the only independent detergent manufacturer with two completely integrated producing locations. A continuous sulfonation unit of latest design will be installed at the new plant and, under normal conditions, it is expected to produce 30 million pounds of dodecyl benzene sulfonate a year. Other equipment will be a 125-foot bi-directional spray-drying tower and high-speed automatic packaging equipment for dry, liquid detergents.

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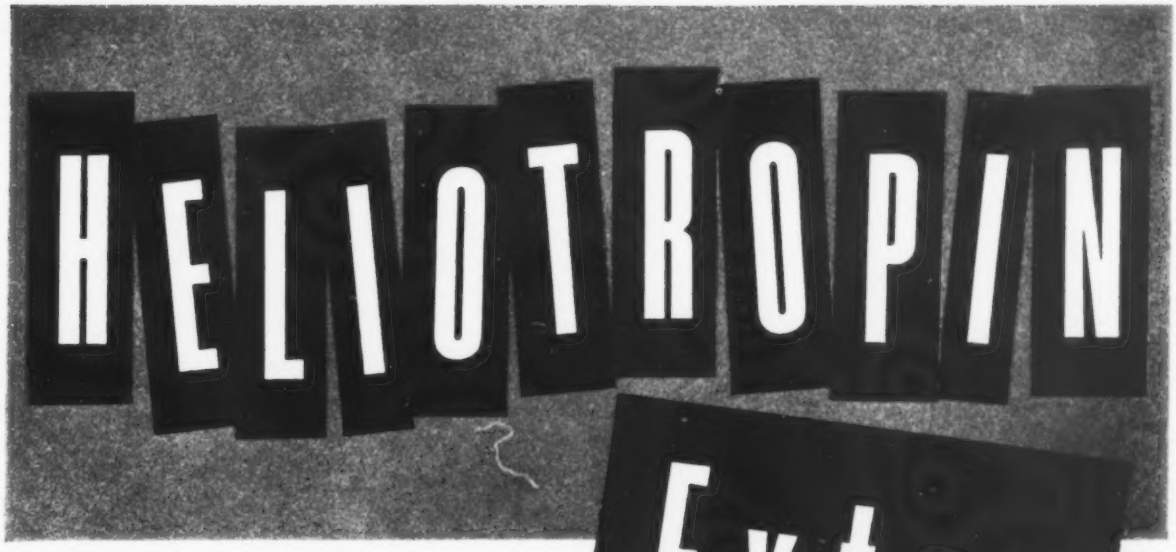

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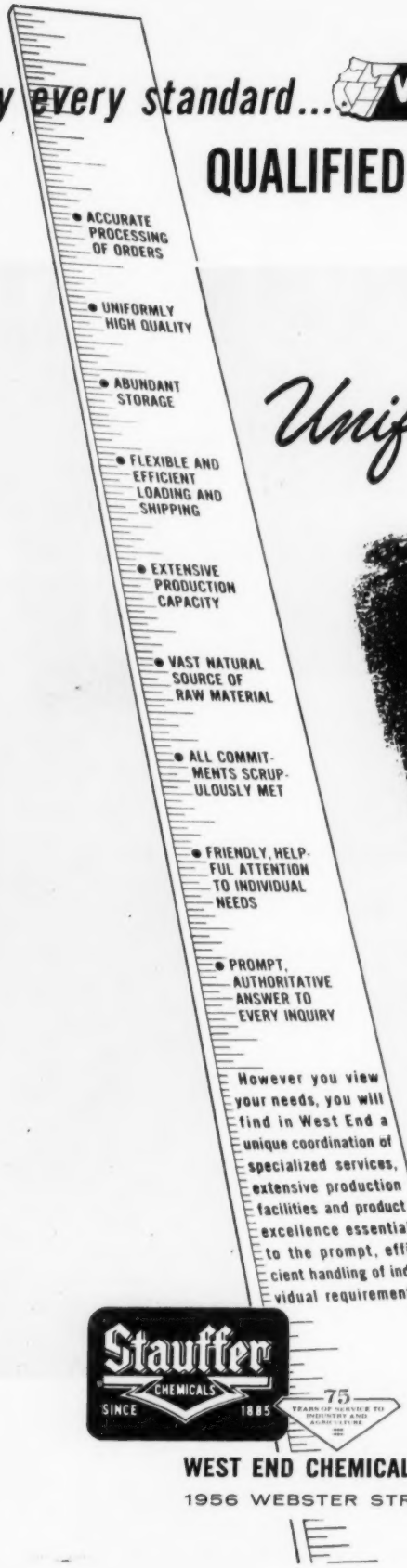
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H_2O	.01 -.10	.20 Max.
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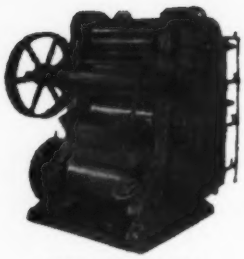

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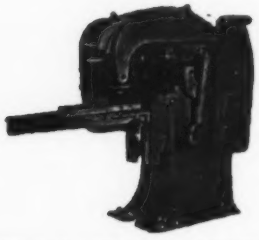

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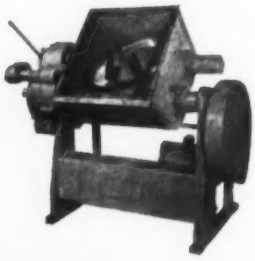

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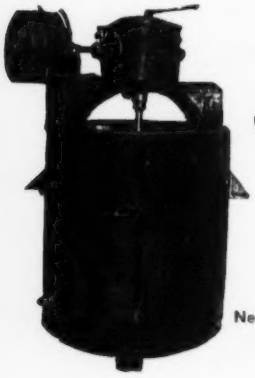

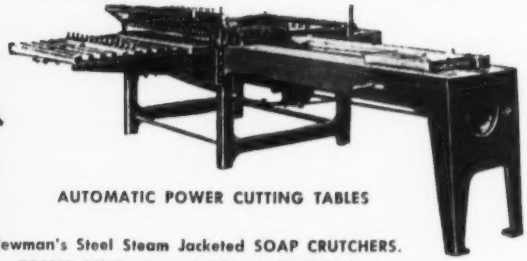

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Water-Based Aerosols

(*From Page* 139)

peratures do not differ significantly from those of propellant 11, Figures 7, 8, and 9 show the ternary diagrams incorporating propellant 114. The areas of miscibility at all three temperatures are slightly less than those of propellants 11 or 12. In view of the insignificant changes in miscibility with temperature, all further solubility studies were made at 70°F. In order to study the maximum number of solvents, further ternary solubility studies were conducted only with propellant 12. Those systems which exhibit large areas of miscibility with propellant 12 will be investigated with propellants 11 and 114.

The area of miscibility of "Cellosolve," H_2O, and propellant 12, pictured in Figure 10, is substantially smaller than that of isopropanol (99%). "Cellosolve," like isopropanol (99%), is miscible in all proportions with both propellant 12 and H_2O.

The ternary system of "Carbitol" acetate, H_2O, and propellant 12, is exhibited in Figure 11. The area of miscibility for this system is almost nonexistent. Notice the lower left hand corner of the graph. It appears that a small area of miscibility exists and then disappears. As the head space in the compatibility tube is decreased, the lower left hand corner of miscibility disappears. Less propellant is used to fill up the head space; more propellant is available to promote immiscibility sooner at high water concentrations.

The hexylene glycol, H_2O, and propellant 12 ternary solubility studies are shown in Figure 12.

"Ucon" Fluid 50HB55 proved to be as good a cosolvent for H_2O and propellant 12 as isopropanol (99%). The miscibility-immiscibility curve is shown in Figure 13.

It was assumed that liquids miscible in all proportions with H_2O and fluorocarbon propellants would act as the best cosolvents for mixtures of H_2O and fluorocarbon propellants. Actual experimentation, as in the case of "Carbitol" acetate, proved this assumption to be false. Until a sufficient number of possible cosolvents are screened, it will be impossible to determine the effects of various radicals or chemical groupings, individually or in combination, on the miscibility of water and fluorocarbon propellants. Our ultimate aim is to be able to predict the miscibility of a solvent as a possible cosolvent by comparing the chemical structure of the candidate with solvents whose miscibility with H_2O and propellants is known. Experimental work to date indicates that isopropanol (99%) and "Ucon" Fluid 50HB55 will permit a maximum of 50 per cent H_2O in combination with propellants 12 or 22. Variations in valve orifices will permit the formulator to obtain suitable residual or space sprays. Desirable aerosol formulations incorporating more than 50 per cent H_2O may be obtained by studying possible cosolvents which are individually completely miscible with H_2O and moderately miscible in fluorocarbon propellants.

Typical low-cost water-based formulations have been developed by utilizing the isopropanol (99%) /H_2O propellant 12 ternary diagram to illustrate the practical applications which can be realized. First, various compositions in the miscible area of the ternary diagram were evaluated for spray characteristics suitable for residual or space sprays. These compositions incorporating maximum H_2O were given preference. It was determined that composition 30% H_2O, 48% isopropanol (99%) and 22% propellant 12 in combination with the Risdon (.080" body and 2 x .020" stem-mech. break up button) valve produced a residual spray suitable for ant and roach sprays and mothproofers. Substitution of the Risdon (.0135" body and 2 x .020" stem-mech. break up button) valve with this same alcohol/H_2O/propellant mixture produces a fine dry spray suitable for air freshners. Space sprays may also be formulated utilizing 30 per cent H_2O, 48 per cent isopropanol (99%) and 22 per cent propellant 22. Residual sprays can be obtained by using the propellant 22 mixture in combination with a valve of larger orifices.

To reduce the number of units to be shelf tested to detect potential corrosion, one miscible formulation (30% H_2O/48% isopropanol (99%) /22% propellant 12) was selected as the basic formulation to be modified into low cost water based insecticidal and household aerosol formulations. The following formulations were developed, shelf tested and judged to be acceptable substitutes for existing nonaqueous aerosol products:

Formula I. Ant and Roach Spray
30% Deionized H_2O
48% Isopropanol (99%)
2% Chlordane
6% Methylene chloride
14% Propellant 12

Formula II. Ant and Roach Spray
30% Deionized H_2O
48% Isopropanol (99%)
2% "Atlox 1045A"
4% "Shell Sol 72"
2% Chlordane
14% Propellant 12

Formula III. Moth Proofer
30% Deionized H_2O
48% Isopropanol (99%)
2% "Atlox 1045A"
4% "Shell Sol 72"
2% Strobane
14% Propellant 12

In addition to reducing the flammability of insecticidal formulations, substantial savings can be realized. Formula II costs $9.59 per 100 pound of product. A typical

nonaqueous ant and roach spray costs $15.08 per 100 pound of product. The major portion of the savings may be realized by using less propellant to obtain the same spray characteristics.

Formula IV. Air Freshner
15% Deionized H_2O
2% Deobase
42.5% Isopropanol (99%)
0.5% Perfume
40% Propellant 12

Formula V. Air Freshner
30% Deionized H_2O
47.5% Isopropanol (99%)
0.5% Perfume
22% Propellant 12

Formula VI. Air Freshner
30% Deionized H_2O
47.5% Isopropanol (99%)
0.5% Perfume
22% Propellant 12

Future work will include development of low cost water based insecticidal space and hair sprays.

Each of these formulations exhibited severe container rusting, pitting and product breakdown in lacquered and unlacquered 0.5 lb. tinplated aerosol cans. Eleven inhibitors were incorporated in the formulation which exhibited the severest corrosion. Four of the eleven inhibitors prohibited detinning, rusting or product breakdown in 0.5 lb. tinplated, three-piece lacquered aerosol containers, at 130°F. for two weeks. The most promising inhibitor was incorporated into each of the formulations. To date no rusting, detinning or product breakdown is detectable after shelf testing for two months at 130°F. or three months at 100°F. The remaining three inhibitors are still on test. No results are yet available. Extended shelf testing at room temperature is planned.

It is possible to formulate low-cost, water-based, two-phase aerosol residual and space sprays. Inhibitors have been found which prevent corrosion usually encountered in aqueous systems. These solubility studies should serve as useful tools in shortening the time required to successfully formulate aerosol products.★★

Book Reviews

(*From Page* 169)

tributed by R. H. Nelson, U. S. Department of Agriculture, now executive secretary of the Entomological Society of America; a monograph on testing resistance of chemically treated textiles to insect damage authored by M. Margaret Walton and Harold H. Shepard, USDA; a chapter on screening chemical repellents by Philip Granett and Eleanor B. Starnes of Rutgers University; and a chapter dealing with the screening of chemical attractants by J. T. Medler, University of Wisconsin.

Methods of Testing Chemicals on Insects, edited by Harold H. Shepard, volume II, published by Burgess Publishing Co., Minneapolis, Feb. 1960. Cloth bound, pp. 248, 8¾ by 6¾ inches, offset, price $5.00.

—★—

Reilly Expands Plant

Reilly Tar & Chemical Corp., Indianapolis, is doubling the capacity of its synthetic pyridine plant in that city with completion scheduled for late this year. The company installed the plant in 1954 and reduced the price last year to 70 cents per pound in drums and 65 cents per pound in tank car quantities.

Carl-Wilhelm Gerberding, left, founder and senior partner of Dragoco, Holzminden, Germany, was recently awarded the Cross of the Federal Order of Merit First Class, by Dr. H. C. Lubke, center, president of the West German Republic. Dr. Suermann, right, president of the provincial administration, congratulates Mr. Gerberding. The award was presented for "meritorious service rendered to the people and the state."

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As Reader Sees It

(*From Page* 43)

tinue to feel that shellac is a most desirable material for their use.

John B. Varian,
Counsel,
American Bleached Shellac Manufacturers Assn.
51 Pine Street
New York 5, N. Y.

—★—

Soap Figures Switched

Editor:

On page 233 of the December issue of *Soap & Chemical Specialties*, I believe there is an error in reporting the 1958 figures for soap chips and flakes, bulk, both in the pound figure and in dollar volume. The figures do not agree with those which we have received in the quarterly soap census report of the Association of American Soap & Glycerine Producers.

T. J. Wrocklage,
Manager,
Bulk Soap Sales Dept.
Procter & Gamble Distributing Co.
Cincinnati

Our figures are, indeed, incorrect. Sales of soap chips and flakes in tonnage and on a dollar basis should be 63,387,000 pounds and $7,524,000. The error occurred in transposing the 1958 tonnage figure and the dollar volume figure for 1959, which should have read $6,176,000, the figure erroneously appearing under the "pounds" for 1958 heading. Ed.

—★—

Dow Names Product Mgr.

Ted W. Palmer was appointed product manager recently for Dow Chemical Co., Midland, Mich., handling chelating agents having application in soap and detergent formulations. Mr. Palmer is responsible for the sales of "Versene" chelating agents and "Seperan" flocculants. Mr. Palmer joined Dow in 1957 as a technical salesman for "Versene," "Seperan," and "Dowex" ion exchange resins.

Stalfort's Line

(*From Page* 159)

the full containers. The cartons are then filled, their flaps turned over and sealed. They are conveyed to the waiting truck after only minutes have passed since they started out with empties.

Founded in 1868, John C. Stalfort & Sons, Inc., look back upon nearly a century of experience in the packaging field. Today they are one of the largest contract packagers in the industry. The firm attributes its long and successful history to its endeavor to offer its customers speed, efficiency, reasonable cost, and complete quality control.

Propellants' Effect

(*From Page* 91)

Propellant 11>Propellant 12

It appears that hydrogen in the molecule leads to greater swelling

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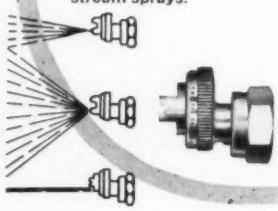

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so that methylene chloride and propellant 21 show a considerably larger effect on plastics than propellants 11 and 12. Also, the effect of propellant 12 is much less than that seen for propellant 11, which would indicate that as the fluorine content of the molecule increases, the solvent's degenerative effect on plastics is decreased.

Looking at the ethane derivatives, it is apparent that increasing the fluorine content of the molecule decreases the swelling effects of the solvent, as shown by the following progression:

Propellant 114a < Propellant 113 < Propellant 112.

It is, therefore, concluded that with the exception of plastics such as nylon, saran, "Bakelite" and "Teflon," which show little deterioration when exposed to any of these solvents, a propellant having no hydrogen and a high fluorine content appears to be the least likely to cause trouble in an aerosol system containing a plastic.★★

Joseph Hanser Dies

Joseph J. Hanser, 77, a retired soap manufacturer, died in Milwaukee, Jan. 4, after a long illness. A native of Germany, Mr. Hanser had operated a soap company in Milwaukee for about 20 years until illness forced his retirement two years ago. In recent years he made a product tradenamed "Ribbons of Pure Soap." His late brother, John, operated another soap concern known as John Hanser Soap Co., Milwaukee.

Table VI. Swelling Characteristics of Various Plastics in Propellant 12

Plastic	% Change width	% Change length	% Change thickness	% Change weight	Remarks
Cellulose nitrate	0.0	0.0	0.0	1.5	After 2 weeks, weight back to original value
Polyvinyl alcohol	—0.3	—0.7	0.0	0.4	Solvent has little effect
Polyvinyl chloride	0.0	0.0	0.0	0.0	Solvent has no effect
"Teflon" (tetrafluoroethylene)	—0.4	—0.7	9.6	6.7	After 2 weeks, wt still 103% of original value, thickness back to normal
Cellulose acetate	—0.3	0.0	—0.8	15.4	After 2 weeks, weight still 112.5% of original value
Polyethylene	1.9	0.4	2.5	12.5	After 2 weeks, thickness and weight back to original values
"Genetron VK"	2.7	1.6	15.1	13.6	After 2 weeks, wt still 108% of original and dimensions 102% of original values
"Bakelite" (phenolic)	0.0	0.0	0.0	0.0	Solvent has no effect
"Zytel 101" (nylon 66)	0.0	0.0	0.0	0.0	Solvent has no effect
"Plexiglas" (methyl methacrylate)	0.1	—0.1	0.0	0.0	Solvent has little effect
Polystyrene	0.1	—0.1	1.5	2.0	Slight crazing of plastic. Turned milky
Saran (polyvinylidene chloride)	0.0	0.0	0.0	0.0	Solvent has no effect
"Plaskon 8200" (nylon 6)	—0.1	—0.2	0.0	—2.6	After 2 weeks, weight was back to original value

Table VII. Swelling Characteristics of Various Plastics in Methylene Chloride

Plastic	% Change width	% Change length	% Change thickness	% Change weight	Remarks
Cellulose nitrate	—	—	—	—	Sample completely disintegrated
Polyvinyl alcohol	15.3	9.1	9.4	35.4	After 2 weeks, both dimension and wt show approx 1% decrease from orig
Polyvinyl chloride	—	—	—	—	Sample completely disintegrated
"Teflon" (tetrafluoroethylene)	0.0	0.0	0.0	0.3	Solvent has little effect
Cellulose acetate	—	—	—	—	Sample completely disintegrated
Polyethylene	3.8	4.6	3.9	14.5	After 2 weeks, dimension and wt approx 99.5% of original values
"Genetron VK"	0.0	—0.1	2.5	1.4	After 2 weeks, weight and thickness still 101% of original values
Bakelite (phenolic)	0.0	0.0	0.0	0.0	Solvent has no effect
"Zytel 101" (nylon 66)	0.0	0.0	0.0	1.1	Solvent has little effect
"Plexiglas" (methyl methacrylate)	—	—	—	—	Sample completely disintegrated
Polystyrene	—	—	—	—	Sample completely disintegrated
Saran (polyvinylidene chloride)	3.1	2.4	4.9	11.1	After 2 weeks, dimensions and weight show approx 1% decrease from original values
"Plaskon 8200" (nylon 6)	0.0	0.0	0.0	1.9	After 2 weeks, wt back to normal

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COMING MEETINGS

American Chemical Society, national meeting, Cleveland, April 5-14.

American Oil Chemists Society spring meeting, Baker Hotel, Dallas, April 4-6, 1960. 1960 fall meeting, New Yorker Hotel, New York, Oct. 17-19.

Association of American Soap & Glycerine Producers, 34th annual convention, Waldorf-Astoria Hotel, New York, Jan. 25, 26 and 27, 1961.

American Society of Perfumers, sixth annual open symposium, Essex House Hotel, New York, April 28.

Canadian Manufacturers of Chemical Specialties Association, 3rd annual convention, Queen Elizabeth Hotel, Montreal, Oct. 24-26.

Chemical Specialties Manufacturers Association, 46th mid-year meeting, Drake Hotel, Chicago, May 16-18; 47th annual meeting, Hollywood Beach Hotel, Hollywood, Fla., Dec. 3-9.

Chemical Specialties Manufacturers Association, first annual golf outing, June 16, Knollwood Country Club, White Plains, N. Y.

Drug, Chemical & Allied Trades Association, 70th annual meeting, Sagamore Hotel, Bolton Landing, N. Y., Sept. 15-18, 1960.

Federation of European Aerosols Association, Duesseldorf, Germany, April 20-27.

Folding Paper Box Assn., annual meeting, Ambassador Hotel, Los Angeles, March 22-23.

Industrial & Building Sanitation-Maintenance Show and Conference, Sheraton-Cadillac Hotel, Detroit, Oct. 25-28.

Institute of Sanitation Management, Western Regional Conference, Claremont Hotel, Berkeley, Calif., Mar. 31-Apr. 2.

International Congress of Surface Activity, Cologne, Germany, Sept. 12-17.

National Packaging Show, Convention Hall, Atlantic City, N. J., April 4-7, 1960.

National Sanitary Supply Assn. 37th annual convention, Fontainebleau Hotel, Miami, Fla., May 22-25, 1960.

Packaging Machinery Manufacturers Institute, (PMMI) fourth annual show, Cobo Hall, Detroit, Oct. 31-Nov. 3, 1960.

Society of Cosmetic Chemists, New York Chapter, New Yorker Hotel, April 20.

Synthetic Organic Chemical Manufacturers Association, monthly luncheon meeting, Roosevelt Hotel, New York, April 12; annual spring outing, Shawnee Inn, Shawnee, Pa., May 11-13; annual meeting, Roosevelt Hotel, New York, Dec. 8.

Toilet Goods Association, 25th annual meeting, Poland Springs House, Poland Springs, Me., June 27-29, 1960. Scientific Section, Waldorf-Astoria Hotel, New York, May 11, 1960.

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Tale Ends

KNOW how insects keep from freezing to death in the winter? Well, it seems that when the temperature drops, their bodies manufacture glycerine which acts as sort of an anti-freeze. According to SCAN, which is short for Shell Chemical Agricultural News, large quantities of hibernating carpenter ants were collected and showed a body glycerine content up to 10%. On warming up the ants, the glycerine disappeared. On rechilling, it was fully restored. Ants in Maryland showed little glycerine, but on transporting them to colder Minnesota, up went their glycerine content. If we ever run real short of glycerine, it's a good thing to know.

* * * * *

Another "new product" has been added to the line of National Chemical Laboratories of Pa., Philadelphia chemical specialties manufacturing outfit. According to Al Pollack, National's president, the new "item" is not a soap, a disinfectant nor a floor wax,—but a fine big bouncing baby boy. Kenneth Ronald Pollack was born to Mrs. Al (Sonny)' Pollack at 6:30 p.m. on February 17. The Pollacks have one other child, a 29-months-old boy.

* * * * *

We have a budding Demosthenes in our midst gentle reader. And of all things the guy is a soap salesman. Name? John Michael Nykiel, sales manager of the Associated Products Division of Colgate-Palmolive Co., N.Y.C. Scaling the oratorical (and political?) heights, John was recently elected president of the Westchester Toastmasters Club. Toastmasters, which John joined in 1958, is an international non-profit organization of business and professional men devoted to self-improvement through education in public speaking.

* * * * *

After 53 years at the same location on 44th St., New York, the Utility Company, manufacturer of "Gre-Solvent" hand soap and other hand cleaners, moved its offices recently to 160 Fifth Ave., New York. The company plant has been moved to the Bronx. The chief reason for the move, according to Dave Stutts, executive vice-president of Utility, is because the building at 636 West 44th St. occupied these many years is being torn down to make room for a housing development.

* * * * *

Hold on to your hats boys! We just received word from one of our spies that the National Sanitary Supply Assn. will hold its 1962 trade show and convention in New York City during the last week in May. The exhibits will be set up on the fourth floor of the Coliseum. Convention hotel is to be the Commodore, again. Although it had been hoped to make the convention headquarters the Hotel Zeckendorf, now abuilding near the N. Y. Coliseum, NSSA was afraid it would not be ready in time for the convention. Meanwhile, plans are being completed for the 1960 wingding to be held in Miami.

* * * * *

Ira Wolfson, prez of Pace, Inc., of Wilmington, Del., put out a novelty aerosol promotion piece a couple of months ago. The label stated,—not instant coffee nor instant tea, but Lady Chatterley's "Instant Sexx." The girls of the Soap Assn. staff reading about this intriguing product in a recent issue of SOAP asked us to ask Friend Ira for a few cans of the stuff. He obliged. They said that they wanted to give it to their respective boy friends as Valentine gifts. Instant Sexx! We wonder what the girls expected.

* * * * *

Out in Cheyenne, Wyoming, they take their Hereford bulls very seriously. In fact, the Laramie County Hereford Breeders Assn. not so long ago took over a car wash station and gave some bulls a perfumed bubble bath prior to their appearance at a livestock sale. Supposedly, they used the best in bubble bath preparations. Nothing too good for a Wyoming Hereford bull. Those bulls interviewed stated that they didn't think much of the idea. They prefer to smell like a bull. Cows are also reported not to care too much for perfumed bulls.

* * * * *

A new face may soon grace consumer advertising for hair care products of John H. Breck, Inc., Springfield, Mass. The new potential model for distinctive pastel paintings used to advertise Breck shampoos, hair sprays, etc. is Anne Killeen, fifth grandchild, but to date only granddaughter, of Edward J. Breck, president of Breck. She was born Jan. 30, 1960. If Miss Killeen follows the pattern already established, she will become the fourth generation in her family to model for the pastels of women and children used in Breck advertising.

To date, the series of over 100 original Breck pastels have included portraits of the late Mrs. John H. Breck, Sr., wife of the founder and present chairman of Breck. Mrs. Edward J. Breck, wife of the chairman's eldest son and Mrs. Donald Killeen granddaughter of John H. Breck, Sr. and mother of Anne Killeen.

Others in the Breck family whose portraits have appeared in Breck advertisements include other sons and daughters of Edward J. Breck, the children of John H. Breck, Jr., the company's vice-president, and sisters of Edward J. Breck.

All of the paintings were done by Charles Sheldon, well known pastel artist of Springfield, Mass.

"Trissy," first big fish to fly from coast to coast, is prepared early in February for for his journey aboard a jet airliner by Dr. Carleton Ray, assistant director of the New York City aquarium and an aide. The three and one-half foot, 25 pound tiger shark, which was joined by a mate late last month, got its name from "Tris Amino," a chemical produced exclusively by Commercial Solvents Corp., New York. Added to the waterfilled crate in which the shark was shipped, the chemical made it possible for him to survive the trip. Four hours after leaving New York "Trissy" was swimming happily and healthily in his new quarters at the Steinhardt Aquarium in San Francisco. "Tris Amino," short for Tris (hydroxymethyl) aminomethane, is said to be effective as a buffer in reducing the harmful effects of accumulated carbon dioxide in transport water.